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PAPER TRADE JOURNAL

VOL. 123, NO. 7 AUGUST 15, 1946

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WOOD PULP

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1886—1946

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WOOD PULP

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See Open Newsprint Billing As Omen of Price Rise
Pacific Mills Names Jackson a Vice-President
Maine Pulp Mills Seek Skilled Woods Help
Dominion Trade Awaits Next OPA Move

Wisconsin Mill Employment Continues to Show Gain
Hoosier Trade Needs But Little Adjustment
New Kimberly Issue Receives Approval
Calder Expects Increased Profit

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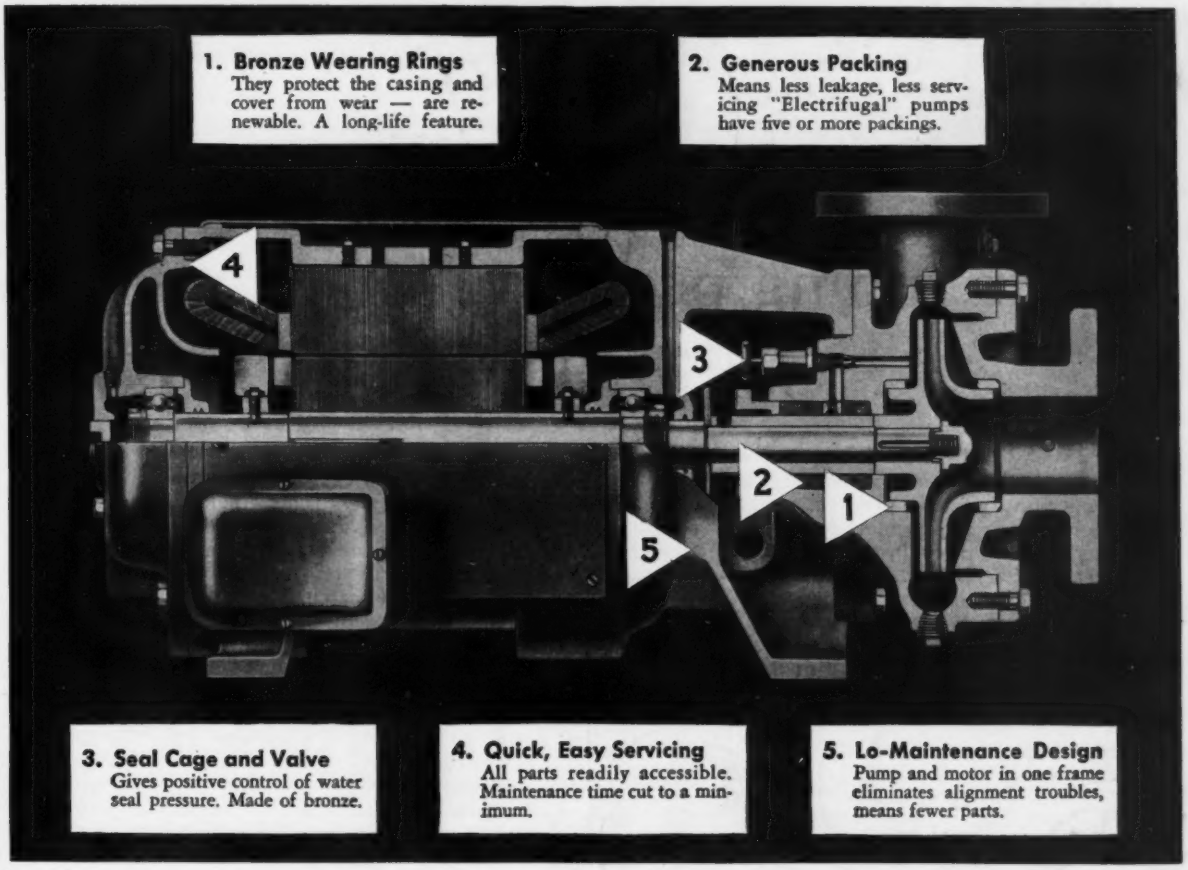
that cut pump maintenance costs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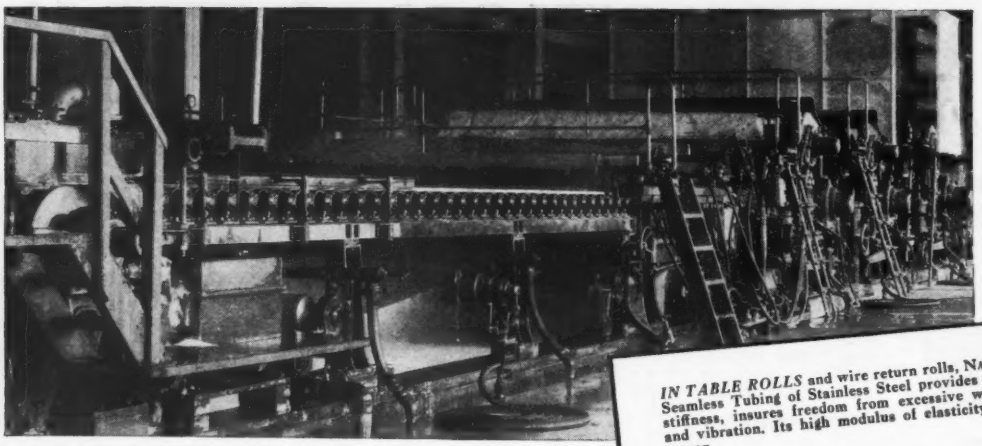

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PAPER TRADE JOURNAL

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CONTENTS

AUGUST 15, 1946

Dominion Mills Wait On Next OPA Move 7
Expect Price Rise to Follow Open Billing on Newsprint 7
B-S-W Modernizes Barking Equipment 8
Gould Improvements Are Set in Motion 8
Hoosier Trade Needs Little Adjustment 10
CPA Takes Hand In Shortage of Casein 12
New Kimberly Issue Receives Approval 14
Driessen Describes Production Control 18

Financial News 14
Market Review 54
Imports 52
Editorial 36
Production Report ... 37
Miscellaneous Markets. 56
Market Quotations ... 56
Classified Advertising. 60

Technical Section *("TAPPI")*

TAPPI Notes 37
TAPPI Survey of Paper Coating Literature for 1945 .. 39
Clarification of Green Liquor 45
Index, Technical Section, Paper Trade Journal, Volume 122, January to June, 1946 47
Chemical Composition of Process Water for Kraft Paper Manufacture 50

PAPER TRADE JOURNAL IS INDEXED IN INDUSTRIAL ARTS INDEX

INDEX TO ADVERTISERS ON PAGE 74

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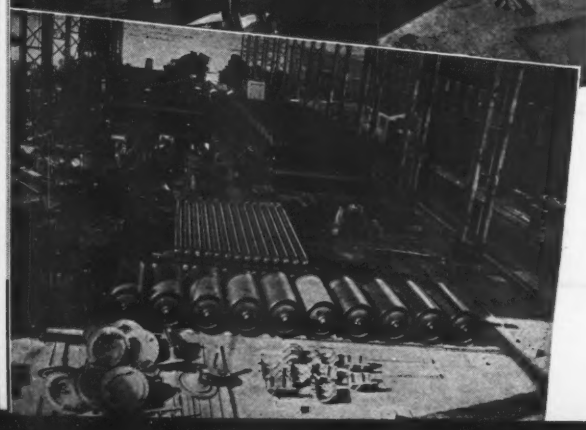

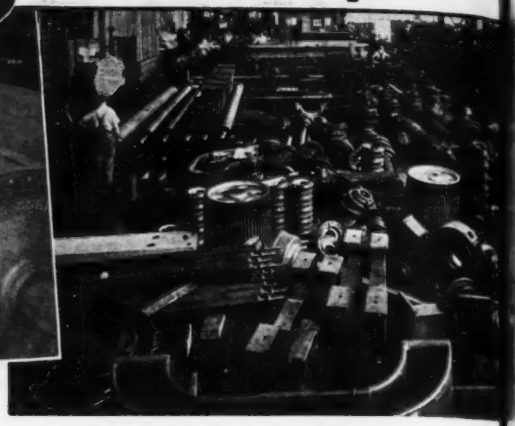

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PAPER TRADE JOURNAL
Vol. 123, No. 7 August 15, 1946
Title Reg. U. S. Pat. Off.

Dominion Mills Wait On Next OPA Move

TORONTO, Ont.—Consensus of opinion both among financial circles and company officials of the pulp and paper industry is that another price boost in newsprint, if granted, would be from $4 to $6.25 a ton, the figures being discussed in the conversations under way when the OPA took an enforced holiday.

However, even though the OPA and modified price control have been restored in the United States, that does not necessarily mean that the recent advance of $6.80 a ton will stick or that the price being discussed prior to July will be realized, almost everyone will concede. So the two big questions of the moment are: How will the rollback of most United States prices to June 30 levels affect the recent Canadian newsprint price increase and what are the chances of a further increase in the price of newsprint, if and when the modified OPA officials permit the $6.80 price increase on the basis of the fact that the increase was merely a means of compensating Canadian newsprint mills for the change in the valuation of the Canadian dollar to get it on a par with the United States dollar.

The Canadian newsprint trade generally is of the opinion that the $6.80 a ton will be allowed to stand, although at the time of writing nothing definite had been heard from United States sources.

There are still sharp differences of opinion with respect to any additional increase of Canadian newsprint to United States publishers at this time. Some feel that the request for still higher prices will be looked upon with favor by the price control officials, since the request was based on the cost-selling price equation of newsprint producers and emphasized that the industry could not afford to absorb current cost increases without price relief. These same sources feel that United States production will fall below present levels unless relief is granted. They point out that the United States Department of Commerce recently estimated that between 185,000 and 190,000 tons of domestic newsprint is scheduled to be diverted to output of other classes of paper by the end of this year.

On the other hand, there are those who take special note of the fact that

(Continued on page 18)

Expect Price Rise to Follow Open Billing on Newsprint

T. B. JACKSON
Elected to a Vice-Presidency

Pacific Mills Promotes Jackson To be a Vice-President

VANCOUVER, B. C. — Directors of Pacific Mills, Limited, have appointed T. B. Jackson to be a vice-president of the company. Mr. Jackson joined Pacific Mills in 1941 as manager of the timber division. Prior to joining Pacific Mills he was associated with Crown Zellerbach Corporation in the United States as resident manager of their Seaside logging operation. Mr. Jackson is a forestry engineering graduate of the University of Idaho and has been connected with the forest industry since graduating.

Wholesale Volume Up 50 Per Cent for 6 Months

WASHINGTON—Wholesalers' sales of paper and paper products totaled $49,720,000 for the first six months of this year, a gain of 24 percent over the corresponding half of 1945, according to the Bureau of Census, based on figures from reporting firms. June sales were $8,119,000, a decline of 1 percent from May, but 40 percent above those of June a year ago.

Inventories declined 2 percent in June, from May, but were 25 percent higher than for June a year ago.

WASHINGTON—Pulp and paper men this week followed the movements of the Office of Price Administration with more than casual interest in the belief that early action might be taken on adjustment of price levels that should, it is hoped, settle the industry on an even level with its costs. Adjustments here and there in various special items, and a suddenly granted permission late last week to ship newsprint on open billing, pending new prices, had established as a certainty in the minds of many, that action might come at almost any day.

The Office of Price Administration on August 8 authorized sales of newsprint and of imported wood pulp to be made on an adjustable price basis. Under this action, sellers are permitted to deliver imported wood pulp and domestic or imported newsprint on open billing, pending final determination by the price agency whether price action is necessary, and if so, the amount of increase required.

The adjustable pricing is authorized to avoid interruption of supply, pending consideration of the industry's request for a price adjustment.

Until OPA acted, the industry was operating on price ceilings in effect June 30. Since that time, the value of the Canadian dollar, in relation to American currency, has been adjusted by an advance of ten per cent in the Canadian currency.

By permitting the open-billing form of sales, OPA has given producers authority to bill their customers for the difference between prevailing ceiling prices and the price ceilings which will be set eventually by OPA.

It was understood here that the OPA's industry advisory committee on newsprint will hold a meeting on Aug. 13, either in Washington or New York, to discuss with pricing officials, the new ceiling levels for the product.

Ceiling prices for "Pure Pak" milk bottle blanks, used by the dairy industry as paperboard milk containers were lifted from 7 to 16 percent by the Office of Price Administration on August 8 as part of the pricing program designed to encourage increased pro-

(Continued on page 10)

B-S-W Modernizes Barking Equipment

PORT ALBERNI, B. C.—Bloedel, Stewart & Welch Company is now engaged in extensive changes at its mill. The changes are being made in the interest of efficiency but some of them at least will eliminate what has almost become a tradition at larger mills. The sawmill burner is on its way out, as waste which formerly went to the burner fire will now go into the making of sawdust for fuel for the mill boilers while all the wood in the log will be utilized for either lumber or pulp.

Modernization of the plant has involved the erection of a new mill building and this has now been completed west of the present main sawmill structure. New conveyers have already been constructed to collect slabs from other parts of the mill and carry them to the new section. The present chipping plant will eventually be removed to make room for other new buildings and the present new structure will be used by the hydraulic slab barker.

As the slabs are conveyed through this barker, the bark is removed from the wood underneath, by being subjected to a series of jet nozzles through which the water is sprayed on under a pressure of 1200 lbs. per square inch. This method removes every particle of bark from the log. The water pressure is secured by pumping the water through a series of stages, the pressure being gradually raised at each stage. As the water and bark leave the slab the mixture is passed over rapidly moving screens which allows the water to run out and the bark is then conveyed to a hog machine which prepares it for its final use as fuel. The bark fuel is stored in a bin with a capacity of 1200 units. Special worm conveyors connect this huge newly constructed bark bin with the boiler room.

With the bark completely removed the remaining portion of the slab which is outside wood of the log, is then fed through the chipper machines which are on the floor below the hydraulic barker. The resultant chips will then be conveyed to the pulp mill over a belt 36 inches wide with a length of over 2,000 feet. The concrete foundations of the chipper units are already laid and it is expected that this section of the mill will be in operation before the end of this year.

A similar process, still in the blueprint stage, is the log-handling machinery by which the whole log will be reduced in the same manner as the bark. This part of the development will be undertaken in a new building to be erected where the present chipper plant stands. Here the entire log will be given the same hydraulic treatment and the log cleaned of all its bark will then be fed into a giant chipper, being cut into lengths of 20 feet or more en route. This process will further augment the supply of chips for the new pulp mill of the company which is now under construction at Port Alberni.

A concrete fireproof vault has been built at the plant to contain transformers which will reduce the power down from 2300 volts to 550.

Kimberly-Clark Rushes Improvement Program

NEENAH, Wis. — Laying of exterior brick and inside glazed tile was started last week at the new addition to the Lakeview mill of Kimberly-Clark Corporation.

All the steel framework is now up and part of the work on the wire pit and area for the new paper machine has been completed. The machine will be located in the basement, with the main portion of the machine stretching up onto the main floor. The concrete floors are reinforced with steel networks.

Another Kimberly-Clark Corporation project nearing completion is the new parking area paralleling the spur track on the north side of the Badger-Globe mill. This is expected to be finished by August 15.

Permanent sheet piling has been sunk 16 feet along the Fox River edge. The parking area stretches back 580 feet and will provide space for an estimated 90 automobiles.

Maine Pulp Mills Seek Skilled Woods Help

PORTLAND — Maine paper and pulp companies have started to recruit labor for the fall and winter operations in the big woods and they report varied results. One company says the outlook for workers is almost unchanged from a year ago when the bulk of young men were still in the armed services. Another reports it has received applications for jobs, a novelty in that respect since 1940. Biggest complaint of paper companies is their inability to get skilled workers for woods operations. Many so-called trades in that industry are disappearing as the old generation retires; youngsters refuse to take up the work.

Neenah's Addition Is Practically Completed

NEENAH, Wis.—Neenah Paper Company's new addition has been completed, except for the tunnel and the hanging of doors, which had not yet arrived late last week. C. R. Meyer Construction Company was the contractor. Neenah Paper crews were painting the interior of the building last week. The scale has been installed and some storage material has been placed in the first floor area, but the elevator may not be completed for a week or two. All four floors are identical except the first which has been divided near the front entrance to provide an office for the shipping clerk.

Gould Improvements Are Set in Motion

LYONS FALLS, N. Y.—An extensive construction and expansion program, now under way at the Gould Paper Company's plant, is planned to permit a trebling of the company's business. R. W. Shaver, vice-president and general manager, explains that immediately after Continental Can Company acquired the stock of the Gould Paper Company, complete engineering studies were made for rehabilitation and expansion that would make this company a leading producer of ground wood specialties and sulphite papers for the printing and converting trade.

The company possesses extensive timber limits in the Adirondack forest area, ample water power at Lyons Falls and on the Moose River, and with the expansion program will have one of the most complete and well-balanced manufacturing units in the industry.

New construction includes complete sulphite and ground wood stock systems, water filters, savealls, rehabilitation of paper machines, new finishing and storage buildings, new offices, new high pressure steam plant with steam power turbines.

The present program involves over $2,000,000 in contracts, which have already been placed, and it is planned that further contracts will be let as soon as materials and equipment are available.

The higher production resulting from these improvements will eventually increase the annual sales of the company from $1,200,000 to $4,500,000, and there will be a very material increase in the number of employes.

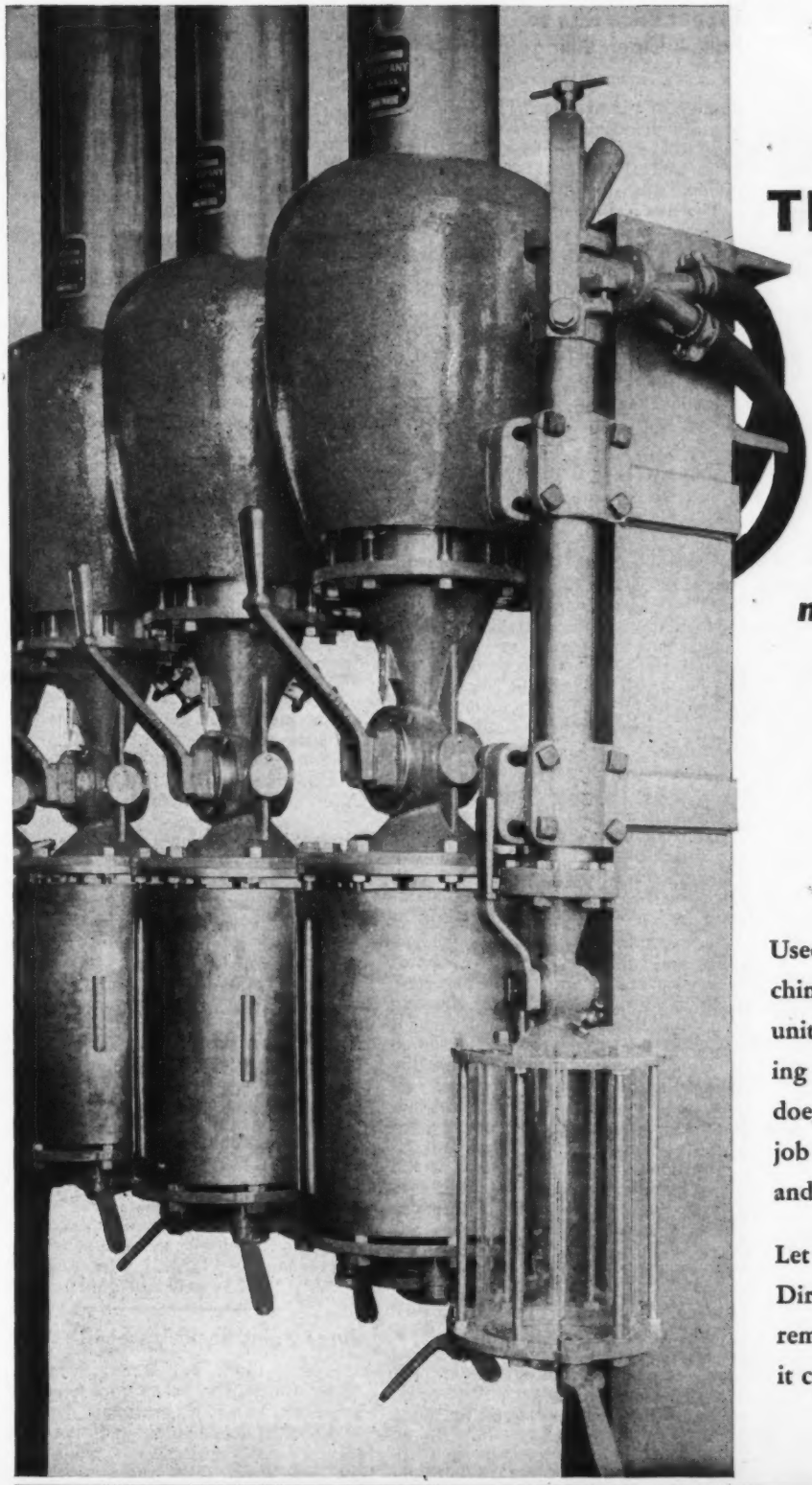
The Lyons Falls Home Building Corporation has been incorporated, with a capital stock of $250,000, to promote home-building and ownership, which will be started as soon as materials are available, and the village of Lyons Falls will have a rapid growth in the near future.

Several acres of the company have been made available to the board of education and the village for adequate facilities for athletic, recreational and general community activities.

Douglas M. McBean, consulting engineer of Rochester, is handling the engineering work in connection with the expansion, and the Sheldon Construction Company is doing the general contracting work.

Fiber Board Raises Wages

MARTINSVILLE, Va. — A wage increase of five cents an hour to all hourly workers has been granted employes of Fiber Board Container Company, here, effective August 5. An agreement to that effect was reached by Mr. Groner and by Frank Chavez, international representative of Local 284, United Furniture Workers of America, CIO, and the shop committee composed of three employes.



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Hoosier Trade Needs Little Adjustment

INDIANAPOLIS, Ind.—Change back to OPA control has had little effect thus far in the paper situation here. While all restrictions were off nothing indicating a runaway market was seen and if all previous controls are resumed there will be little change. All kinds of paper continue to be scarce and the local trade sees no improvement in sight for some time to come.

Building and roofing grades seem to be the one exception. There appears to be a plentiful supply, or at least sufficient to take care of current demands. One cause for this is the lack of lumber to enable new construction. There is hardly any doubt but that were lumber available in sufficient quantities there also would be a shortage of building paper and roofing.

Tissues continued very scarce particularly cleaning tissues. Demand was much heavier than supply. A continued demand continued for waxed papers and cellophanes, but in the waxed paper field there has not been the demand expected. It is said shortages of ingredients particularly in the baking field have caused this situation. Many small bakeries have closed entirely until the situation is eased.

Fine paper demand also was good and local jobbers still are trying to whittle down the backlog of orders, with little success.

Newsprint was moving well with such supplies as are available being sold readily. Manufacturers predict a continued shortage of newsprint during the remainder of the year and attribute it to lack of imports of wood pulp.

Rag demand was heavy last week with better grades of cuttings being most wanted, though there was no difficulty in disposing of all supplies collected. Prices were strong. Collections of waste paper the last week were only fair and the stocks were sold readily. However, it is reported that mill demand was not as keen as it had been sometime before. Prices were strong.

Kohler and Fourness To Meet in Finals

NEENAH, Wis. — Joe Kohler of the Main office and John Fourness of the Atlas plant of Kimberly-Clark Corporation have reached the semi-finals of the Kimberly-Clark golf championship, Bob Lloyd, K. C. A. sports coordinator, announced last week.

Howland Back from Vacation

BOSTON—Arthur V. Howland, vice-president of Tileston & Hollingsworth, manufacturers of Old Fashioned Papers, has returned from a most enjoyable five weeks' trip to Elkhorn Ranch, Bozeman, Montana, flying out and back.

Expect Price Rise to Follow Open Billing

(Continued from page 7)

duction of the product. The action applies to manufacturers selling east of the Rocky Mountains. The single West Coast producer is eligible for individual adjustment when needed.

The new ceilings, in uniform dollar-and-cent prices, went into effect on August 9. The price per thousand quart blanks is raised 84 cents to $8, pint blanks are advanced 58 cents to $6.10, half-pint blanks, 32 cents to $5.10; one-third quart blanks, 85 cents to $6.05; and two-quart blanks, $1.10 to $16.75 in sales of 250,000 or more.

The price of the basic paperboard used in the manufacture of the blanks was increased on April 25, 1946, in an effort to increase production of the material, and certain sheeting differentials to producers of milk bottle board were granted recently.

Increases in the ceiling prices of paraffined cartons and paper pails, necessary to maintain the supply of these essential products, were made by the Office of Price Administration on August 9. Maximum prices for paraffined cartons, which are used to package butter, oleomargarine, lard, shortening and other food products, were raised 75 cents per thousand for one-pound cartons and nine per cent for two-pound, three - pound, four - pound and eight-pound cartons.

Paper pails, including stock and specialized carry-out pails, food pails and direct-fill pails in which retailers dispense fluid foods, were raised in price five per cent over former maximum levels.

Recent increases in carton paperboard and other material costs, which in some cases amount to 20 per cent, resulted in many producers showing losses under the former price schedules. Today's increases are designed to enable producers to maintain the required supply of these products. The increase for cartons of all sizes affected by the action will cover total costs for more than 85 per cent of total production and in the case of the larger containers will cover total costs for all essential producers. For paper pail producers, the five per cent advance will provide total costs for producers of about 90 per cent of total output.

Because the cost of containers makes up only a small fraction of the cost of the products which they contain, this increase in container prices is expected to have little if any effect on the retail prices of the food packaged in them, OPA said.

Pulpwood consuming mills in Virginia and North Carolina are authorized to pay for truck-delivered pulpwood a differential of 75 cents a cord above their existing f.o.b. car ceiling prices, the Office of Price Administration announced on August 7.

Effective August 12, purchasing mills mills may pay the flat amount of 75 cents additional, or continue to pay whatever trucking differential they had in effect during January and February 1943, whichever is higher.

Previously, the mills were held to their January-February 1943 differential. Today's action is designed to raise the trucking differential for mills frozen with a low payment or none at all, and thus encourage truck deliveries of pulpwood to such mills. Truck deliveries are generally cheaper than rail deliveries.

Simultaneously, mills are authorized to pay a dealer commission to sellers who have qualified as dealers by selling and delivering 8,000 cords of pulpwood to consumers in any twelve month period after January 1, 1946. Previously, sellers qualified as dealers only when they sold 8,000 cords in any calendar year.

Wisconsin Employment Continues to Gain

MADISON, Wis. — A two percent increase in the number of employes in Wisconsin paper and paper products industries was reported for June compared with May by the Industrial Commission of Wisconsin. The report showed a total of 26,300 workers in June and 25,800 in May.

The increase in the total weekly payrolls was greater — 3.5 percent — the payrolls aggregating $1,105,000 per week in June and $1,068,000 in May. Average hourly earnings were 96.4 cents, or $42 a week for 43.6 hours.

In Milwaukee county, 22 paper and allied products firms reported a total of 2,376 employes in June, an increase of 0.1 percent over May. Payrolls declined an average of 1.6 percent, however, the total weekly average being $99,673. Hourly earnings average 92.9 cents, or $41.95 for 45.2 hours.

Valley Iron Picnic Fills Day With Games

APPLETON, Wis.—Three hundred employes of Valley Iron Works attended their annual company picnic Saturday afternoon, August 3, at Stroebe's Island. The time was spent playing softball, horseshoe, dartball, rolling pin throwing contests, shoe races, bean bag races and umbrella games. The machine shop defeated the foundry, 19 to 17, in the annual ball game.

Linda Joins St. Regis Staff

F. Ray Linda has joined St. Regis Paper Company's New York office as assistant to Carl H. Hartman, director of technical development and vice president of St. Regis Sales Corporation, the St. Regis sales subsidiary. Mr. Linda is widely-known in the paper industry through many years of sales engineering and sales development work, particularly in connection with bag-filling and closing equipment, and development of variations in bag construction and closures.

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Cooper's intensive study of stainless steel castings has been "on the record" since the earliest days of commercial use of stainless steel. In the past quarter of a century, progressive developments in casting techniques, metallurgical controls and advanced methods of inspection have made possible our growth to the largest exclusive stainless steel foundry in the country.

As a result, Cooper now offers the purchasers of stainless steel castings new methods and continued improvements in machine molding, sand control, heat treatment and centrifugal casting.

And we're still growing . . . developing every phase of the business so that you may continue to be assured of the best in stainless steel castings and the best advice on their application.

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CPA Takes Hand In Shortage of Casein

WASHINGTON — United States production of casein during the remainder of 1946 will meet not more than twenty per cent of domestic requirements for 25 million pounds of the dairy by-product, members of the Processed Casein Producers and Casein Importers Industry Advisory Committees told the Civilian Production Administration at a joint meeting. Civilian Production Administration officials agreed to present the recommendation to the Office of Price Administration.

Industry leaders said attempts to import 20 million pounds of casein were being stymied by United States price controls which are pegged below the market prices of countries such as Argentina, where casein is available.

Describing the present price of 33 cents a pound as inadequate to bring out more domestic production, committee members recommended removal of price controls. Two to three million pounds of casein would reach industrial users within 14 days if price controls were dropped, the committee said.

The current casein shortage was blamed on a backlog of orders piled up during the war, when casein production dropped because skim milk was being used to make skim powered milk. Within the last year the use of casein by the rubber industry has risen from nothing to a monthly rate of 200,000 pounds. The product is also used in paper, pharmaceuticals, paint adhesives and many types of glue.

Racquette River Employes Win Representation Election

POTSDAM, N. Y. — The Racquette River Employes Council, an independent employes council, was voted official bargaining agency for employes of the Racquette River Paper Company in a National Labor Relations Board election. The Council is a local union operating independently of the company.

In the election held at the local plant recently, 240 votes were cast by the employes to retain their present council, with 14 votes cast in favor of the American Federation of Labor paper mill unions. Only one vote was cast for no union.

The employes' council was organized nine years ago and has functioned satisfactorly since that time. The contract extends to June 1, 1947.

Electric City Mills Sign With U.M.W. District 50

NIAGARA FALLS, N. Y.—A contract has been signed by officials of the Electric City Paper Mills, Inc., and the United Mine Workers of America, District 50. Dora Amdur, president of the company, and Peter A. Vaccarella, a union field representative, signed the agreement, as well as Elmwood Moffett of Buffalo, a union regional director.

The union members will receive an average of 21 cents hourly raise, which includes the seven and a half cent hourly raise given to the employes last January.

The company also will pay time and a half for Saturday work, double time for Sunday and triple time pay if called for emergency work. The pay increase is retroactive to July 17.

Other terms of the contract include a three-day funeral clause, severance pay, one week for one year service, two weeks for two years or more and a 30-day reopening clause.

Kimberly Picnic Features USO Entertainer Acts

NEENAH, Wis.—Kimberly-Clark employes and their families crowded Riverside park Sunday, August 4, at the annual picnic sponsored by the Kimberly-Clark Activities Association. Included in the entertainment were shows by artists who have been appearing on USO tours, special contests for youngsters, rides, music, etc. An orchestra provided music for dancing from 8 o'clock in the evening until 1 o'clock in the morning.

All-Stars of the Lakeview Inter-Department loop scored a 24 to 13 victory over Lab, leaders of the league, in a softball game at Lakeview diamond as part of the sports program in connection with the annual picnic. Badger-Globe defeated Lakeview on the same diamond, while the Lakeview junior hardball team was defeated by the Appleton Koehne team 11 to 5 at Washington park.

Wallpaper Workers Union Stages Annual Picnic

APPLETON, Wis.—More than ninety members of the Wallpaper Workers' Union of the Fox River Valley from the Atlas Mill division of the Kimberly-Clark Corporation and their guests attended an annual union picnic at Stroebe's Island on August 3. A baseball game between the Atlas Mill team and "old timers" who once played with the mill team was a highlight of the day. The former won by a score of 7 to 3.

Work Resumed at N. C. Pulp Plant

WILLIAMSTON, N. C.—Work at the plant of the North Carolina Pulp Company was resumed August 6 after operations were interrupted by a strike staged by workers there Friday night, August 2. It is understood the workers asked for a wage increase, and they picketed the plant gate. There was no disorder, however. Details of the settlement and the size of the wage demand could not be learned here immediately.

Calder Expects Increased Profit

SAVANNAH, Ga.—Alexander Calder, president of the Union Bag & Paper Corporation, reports that, on the basis of current costs and price levels, the new $3,000,000 plant for the manufacture of kraft corrugated shipping containers and other facilities now being installed, should add more than $2,000,000 to the annual earnings before taxes of the corporation. Mr. Calder said engineering work on the new plant, to be located adjacent to the Savannah mill, has already begun and steady progress is being made in the installation of a fifth paper machine and the expansion of the bag factories.

Sales and net income in the three months ended June 30, 1946, were the largest for any quarterly period in the history of the company, the president reported.

Second quarter sales of $11,125,976 were 5 per cent higher than sales in the second quarter of last year and 17 per cent above sales in the first quarter ended March 31, 1946, during which period production was curtailed because of wood shortage.

Net income in the second quarter was $1,391,115, or $1.10 a share, compared with $508,663 or 40 cents a share in the second quarter of last year and with $956,820 or 75 cents a share in the first quarter of 1946. For the six months' period to June 30, 1946, net income totaled $2,347,935, or $1.85 a share, compared with $1,047,300, or 82 cents a share in the first six months of 1945.

Pulp Imports Reach 362,082 Short Tons

Imports of wood pulp into the United States from overseas totaled 25,505 short tons during the week ending August 1, 1946, the Forest Products Section, Office of Domestic Commerce, Department of Commerce, reported this week. The aggregate quantity of wood pulp imported from overseas sources from January 4 through August 1 amounts to 362,082 short tons. Of this total, 305,778 tons were imported from Sweden as against 56,304 tons from Finland. In the week ending August 1, 22,483 tons of wood pulp were imported from Sweden while 3,022 tons came from Finland.

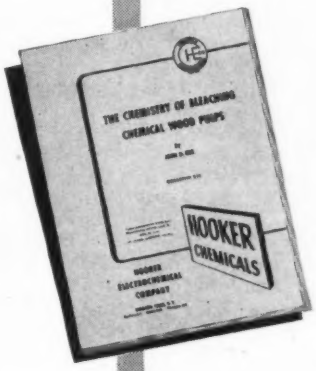
Consolidated Fire Out in Ten Days

WISCONSIN RAPIDS, Wis.—The fire which consumed the main scrap paper storage pile of Consolidated Water Power and Paper Company at an estimated loss of $25,000, was not extinguished until July 29—ten days after it started. Mill officials reported that there were about 1,000 tons of baled paper in the pile, instead of 700 tons, as was first reported, and that the market value was $26 per ton.

Knowing Why—Helps Make Whiter and Stronger Pulps

Through an understanding of the composition of the pulps and of the chemical reactions by which the coloring matter and other undesired components may be removed, the technique of producing whiter and stronger pulps has been advanced. Hooker Bulletin 211 "The Chemistry of Bleaching Chemical Wood Pulps" explains the reactions involved in the bleaching of chemical wood pulps.

SOME OF THE SECTION HEADINGS ARE:



I. *Changes in composition as wood substance is progressively purified.*

II. *Chemical properties of chlorine in relation to process of bleaching.*

III. *Single stage Hypochlorite bleaching.*

IV. *Multi-stage bleaching.*

V. *Chlorination.*

VI. *Alkaline treatment of chlorinated pulps.*

VII. *Reactions with hypochlorite.*

Diagrams, graphs and equations help to make this Bulletin interesting and valuable. A copy will be sent you when requested on your letterhead.

Other Bulletins prepared by our Technical Staff are equally informative and instructive. All are published with the aim of improving processes, effecting economies and raising quality. Send for the list of Hooker Pulp and Paper Bulletins.

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New Kimberly Issue Receives Approval

NEENAH, Wis. — Kimberly-Clark Corporation stockholders on August 9 approved an increase in the authorized common stock from 1,000,000 to 3,000,000 shares, and also voted a two-for-one split of common stock presently outstanding, leaving 1,800,480 shares available for use in future financing requirements.

The stockholders at their special meeting also voted authority to provide 125,000 shares of preferred stock subordinate to the present 4½ percent cumulative preferred stock.

In its announcement to stockholders, the corporation reported that additional common stock may be offered for sale later this year, in connection with the corporation's expansion programs. Launched immediately after the war, these include expansion and modernization of K-C paper and cellulose mills in the United States, including a Memphis plant acquired from the War Assets Corporation, and construction of a new chemical pulp mill and townsite at Terrace, Ontario, Canada.

Cofax Adopts Process To Imprint Tape

LYNBROOK, N. Y.—The Cofax Corporation has perfected a process which reproduces standard type faces, special designs, trade marks and labels on Cofax Dry Seal Tape, with complete fidelity to the original. The tape can be printed in any one color on any one of nine brilliant background colors. The printing is rub-and-smudge proof. Cofax Printed Tape comes on a standard 3 inch core, in any with from ½ inch to 21 inches by 2592 inches in length. It will adhere to woods, metals, plastics, glass, paper and some fabrics. No wetting is needed.

National Container Profits Show a Marked Increase

National Container Corporation sales January 1 to June 30 amounted to $11,503,806, an increase of $1,676,461 over the comparative figure of $9,827,284 for the same period last year. Net profit after taxes to June 30 this year amounted to $1,740,069, compared with $632,373 for the comparative period last year. Current assets to June 30 total $6,732,548, compared with $4,612,570 for the 1945 period. Current liabilities to June 30 amounted to $3,815,881, compared with $2,423,672 for the like 1945 period. Working capital as at June 30, 1946, amounted to $2,916,666 compared with $2,188,898 for the comparative period in 1945. Since the current liability figure includes bank loans to acquire Tomahawk, and these loans became long-term on August 2, 1946, two-thirds of the amount due becomes a non-current liability. Therefore, as at August 2, 1946, the above working capital is increased by $1,151,283.

Great Lakes Issue Sold To Insurance Interests

TORONTO — A new issue of $4,750,000 Great Lakes Paper Co., Ltd., first mortgage sinking fund bonds 3½% series, dated Aug. 1, 1946, and due in 1966, has been sold to two insurance companies in a private sale by three investment houses—First Boston Corp., McLeod, Young Weir, Inc., and Wood, Gundy, Inc., Toronto. The bonds were purchased by Mutual Life Insurance Co. of New York and Northwestern Mutual Life Insurance Co., Milwaukee. The paper company will use the proceeds from the sale to retire $4,746,960 of first mortgage 20-year 5% sinking fund bonds, dated April 3, 1936.

Eastern Corp. Net Continues to Rise

BANGOR, Me. — Operations of the Eastern Corporation for the second quarter resulted in a net profit of $228,391 as compared with $111,862 for the first quarter of the year, a statement of conditions to stockholders reports. The net profit for the six months amounted to $340,253 as compared with an adjusted $309,012 for the same period in 1945.

The provision for federal taxes on income for 1945, reported as $233,000, included an accrual for excess profits tax, which was progressively eliminated over the last six months of 1945 due to reduced profits.

The company produced and sold 1,500 more tons of paper and produced 1,000 more tons of pulp in 1946 (with 13 fewer days of operation in the pulp mill) than during the corresponding period in 1945.

Since January 1, the company has granted general increases totaling 15c an hour and this, together with the other benefits, has added to costs over $575,000 annually.

A dividend of 20c per share was declared June 26, payable August 5, to stockholders of record July 19, 1946. The company has declared a total of 40c per share since January 1.

The net working capital at June 30, 1946, amounted to $3,760,561, an increase of $205,018 since the first of the year.

The company's construction program is still retarded by material shortages and delays in delivery of essential equipment. At June 30, more than 1,700,000 of approved projects had not been completed. The 10,000 K.V.A. capacity power plant will not be in service until about the middle of 1947.

FINANCIAL RECORD OF THE WEEK

New York Stock Exchange

High, Low and Last for Week Ending August 10, 1946

STOCKS

	High	Low	Last
A. P. W.	8¼	8⅛	8¼
Armstrong Cork Co.	57½	57	57¼
Celotex Corp.	33¼	31	31⅝
Celotex Corp., pf.	22¼	21⅝	22⅛
Certain-Teed Products Corp.	25⅝	24⅜	24¼
Certain-Teed Products Corp., pf.	....	....	....
Champion Paper & Fibre Co.	55½	55½	55½
Champion Paper & Fibre Co., pf.	112	111	112
Congoleum Nairn Co.	34¾	33¾	34¾
Container Corp. of America	47½	45⅜	46½
Continental-Diamond Fibre Co.	13⅜	13⅜	13⅜
Crown-Zellerbach Co.	35¼	34⅛	34⅞
Crown-Zellerbach Co., pf.	110	109	109⅛
Dixie Cup Co.	46	45	46
Dixie Cup Co.—A	58½	57	57½
Flintkote Co.	39¾	38⅛	39¼
Flintkote Co., pf.	....	....	....
Robert Gair	10½	10	10½
Robert Gair, pf.	20½	20⅜	20½
International Paper Co.	49⅜	47	48⅞
International Paper Co., pf.	124½	119½	124
Johns-Manville Corp.	140⅝	137½	140⅜
Johns-Manville Corp., pf.	125¼	125¼	125¼
Kimberly-Clark Corp.	63½	63½	63½
Mac Andrews & Forbes	40½	40½	40½
Mac Andrews & Forbes, pf.	....	....	....
Masonite Corp.	68¼	67¾	68¼
Mead Corp.	26⅞	26¼	26⅞
Mead Corp., pf. 4¼	105½	104½	105¼
Mead Corp., pf. 2	56¼	56	56¼
National Container Corp.	35¾	32½	35¼
Paraffine Companies, Inc.	....	....	....
Paraffine Companies, Inc., pf.	....	....	....
Rayonier, Inc.	27½	26⅜	27
Rayonier, Inc., pf.	37⅞	37⅜	37⅞
Ruberoid Co.	56	54¾	56
Scott Paper Co.	58⅞	57½	58⅞
Scott Paper Co., pf.	107	107	107
Sutherland Paper Co.	46	45½	46
Union Bag & Paper Corp.	37⅞	36¼	37⅞
United Paperboard Co.	13½	13¼	13½
U. S. Gypsum Co.	120½	117¾	117¾
U. S. Gypsum Co., pf.	....	....	....
West Virginia Pulp & Paper Co.	47	45	46¼
West Virginia Pulp & Paper Co., pf.	113½	113½	113½

BONDS

Abitibi Pulp & Paper Co. 5s '53	....	....	....
Celotex Corp. 3½s '60	....	....	....
Certain-Teed Products Corp. 5½s '53	....	....	....
Champion Paper & Fibre Co. 3s '65	105⅝	105⅝	105⅝
International Paper Co. 5s '47	101⅞	101⅞	101⅞
Mead Corp. 3½s '53	....	....	....

New York Curb Exchange

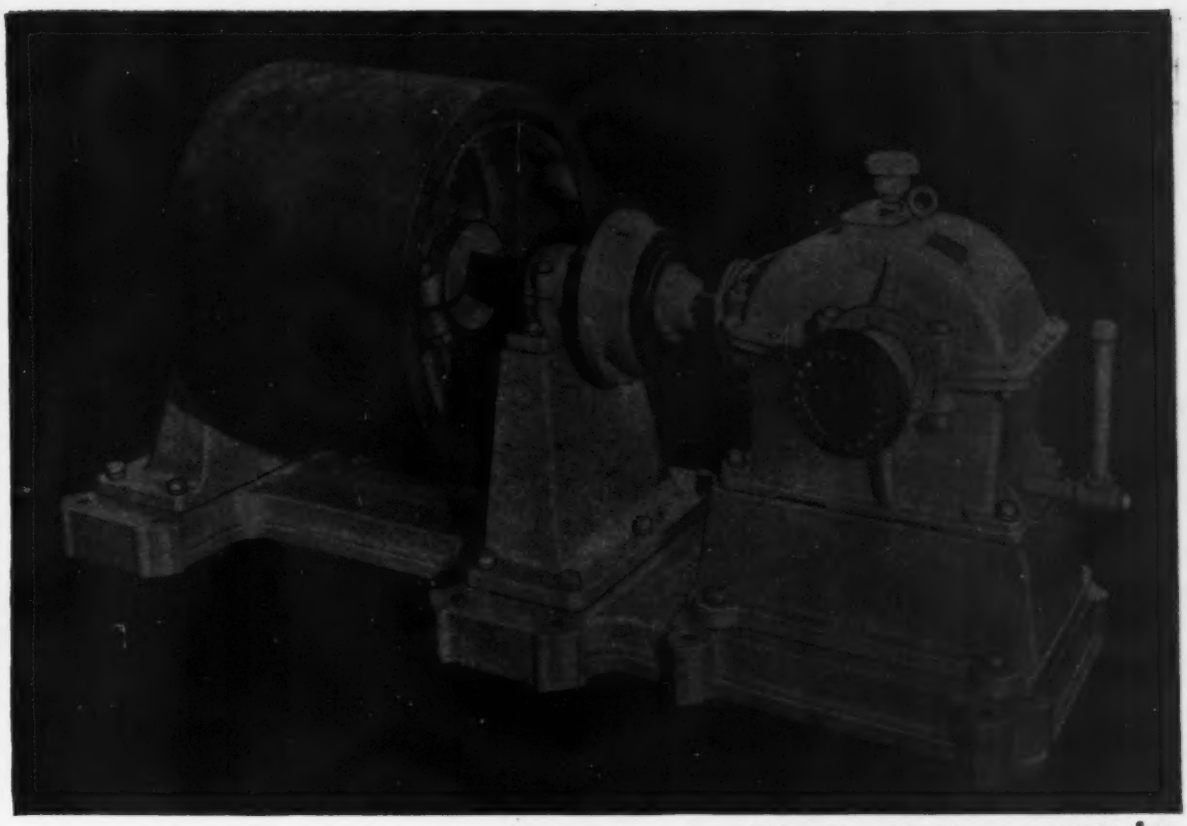
High, Low and Last for Week Ending August 10, 1946

STOCKS

	High	Low	Last
Great Northern Paper Co.	44½	40½	44½
Hummel-Ross Fibre Corp.	17	15½	15½
St. Regis Paper Co.	13¼	12⅜	13⅛
Taggart Corp.	9¾	9⅜	9⅜

BONDS

American Writing Paper Co. 6s '61	103⅛	103⅛	103⅛



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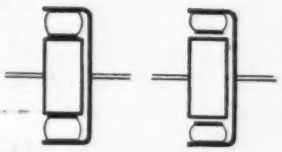

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A Magazine Publisher: "I'm not so much interested in kraft paper but I am using all the improved groundwood paper I can get from St. Regis. There's one of my magazines on the table . . . it's printed on St. Regis groundwood . . . look it over and you'll see why my subscribers and my advertisers like fine, opaque St. Regis publication paper."

A Paper Manufacturer: "I happen to know St. Regis well because I make paper and I buy sulphate pulp from St. Regis. The only trouble is they can't give me all the pulp I need, either bleached or unbleached. I didn't know they were buying mills in the South but I knew they were expanding their big Tacoma pulp mill."

A Refrigerator Manufacturer: "St. Regis has been one of my important suppliers since 1930 . . . not only of paper for insulation but of Panelyte plastic. I know the company as the largest producer of plastic molded inner doors and breaker strips for household refrigerators and of lids and tops for home freezers and commercial units."

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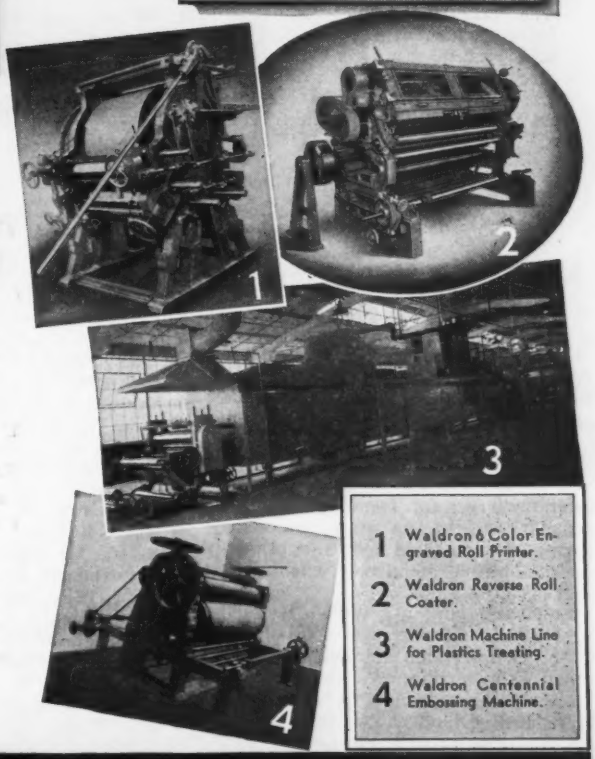

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Conservation Group Goes into the Woods

WAUSAU, Wis. — Forty Wisconsin River valley educators went back to the woods for three days, beginning August 5, to brush up on new phases of conservation and forestry education. The session was the second annual field institute of valley educators at the Trees for Tomorrow Conservation camp at Eagle River, Wis. It was sponsored by the Wisconsin Conservation Department, the U. S. Forest Service, and Trees for Tomorrow, Inc.

The program highlighted tours and lectures to help set up long range school forest management plans and to outline means of introducing conservation as a regular part of a school's curriculum.

A feature was laboratory work in the new arboretum and demonstration forest on the camp grounds, where an inventory plot and forest trail was laid out, a trip through the Rhinelander Paper Company, a northern Wisconsin ranger station, the Hugo Sauer Nursery and the logging museum at Rhinelander.

H. F. Lewis, dean of the Institute of Paper Chemistry at Appleton, Wis., unfolded a picture of the giant strides made in recent years as a result of research and paper chemistry.

Economics of the Nicolet National forest in reference to northern Wisconsin was the subject of a talk by Donald Ball, district supervisor of the U. S. Forest Service at Rhinelander.

Lectures included talks on "Looking Forward in Conservation Education," by Hugh Bennett, information specialist of the U. S. Forest Service, Milwaukee; "Managing School Forests," by F. B. Trenk, extension forester of the University of Wisconsin; and "Using Books and Publications to Best Advantage in Conservation Education," by W. T. Calhoun of the conservation department.

Progress during the last year in Wisconsin valley high school forests was outlined by William Sylvester, forester for Trees for Tomorrow, Inc. A summary of conservation education trends was supplied by R. S. Ihlenfeldt, Madison, and Fred Schmeeckle, Stevens Point, Wis.

Soils and land use were discussed by Ed Hill, district supervisor of the U. S. Conservation Service, and the functions of northern Wisconsin's new forest research center were outlined by J. H. Stoeckler, new director of the center, formerly with the Lake States Forest Experiment Station at St. Paul, Minn.

"Convention Special" Will Carry 18 Cars

The National Association of Waste Material Dealers, "Convention Special," leaving New York on September 7th and Chicago September 8th, and which will carry delegates to the fall convention in San Francisco by way of the Canadian Rockies, will be composed of a total of 18 cars—13 of which will be bedroom cars.

Requests for accommodations on this train have been way in excess of the number that can be carried. Unfortunately, the Pullman Company would not permit the use of any Roomette cars, which substantially cut down the number of persons who could have been carried on the train.

The Association, through its Transportation Department, has reserved space for approximately 40 persons on the "City of San Francisco," crack streamliner train leaving Chicago for San Francisco on September 11th. These reservations will be made available in the order received, first to those on the waiting list for the regular Convention train, and then any member of the Association who may have recently decided to attend the convention.

Dominion Mills Wait On Next OPA Move

(Continued from page 7)

the new price control bill, which authorizes industry price increases only if necessary to insure industry its 1940 unit profit. They claim little hope for any further price increase for Canadian newsprint because since 1946 newsprint company profits are understood to be running well ahead of 1945 profits. They question whether mills can justify further price increases. In 1940 the United States pulp and paper industry had a 9.6% return of net worth, a figure which will likely be exceeded this year.

Some Canadian newsprint manufacturers plan to send representatives to Washington to discuss the situation, just as soon as the revived OPA has had a chance to get organized. In the meantime, prices of newsprint securities have again climbed above their level prior to the sharp market break a few weeks ago, but are still more than 6% below their level at the end of June, when the OPA expired.

Great Britain expects to import about 160,000 tons of Canadian newsprint next year, compared with 50,000 tons in 1946, according to Sydney Gampell, Reuters News Agency financial editor, London. Gampell said present British consumption of 300,000 tons with the "general expectation" being that consumption will be raised to 470,000 tons in 1947 by increasing four-page newspapers to six-page sheets, eight-page newspapers to 10 pages and by allowing larger circulations. "This additional 40,000 tons for Britain would require only a trifling proportionate diversion — about 4% — of Canadian newsprint from Canadian and United States consumption," Mr. Gampell said and added that it is generally accepted that no further Canadian newsprint or Scandinavian pulp will be available to Britain this year.

Driessen Describes Production Control

KAUKAUNA, Wis. — "The Functions of the Production Control Department of the Thilmany Mill" was the theme of a talk by Robert E. Driessen to the Thilco Foremen's Club of Thilmany Pulp and Paper Company at a business meeting Tuesday evening, August 6. The Thilmany mill has an average of ten thousand orders yearly, Mr. Driessen said, and individually they are produced in multiple operations, averaging five, on 86 different machines.

Among the assignments which must be met by the production control groups, the speaker listed the routing, scheduling and dispatching of all mill orders; and the process materials control. The latter is the insurance that materials are available for production when required. He also discussed inventory control of pulp and paper. Since 1941, he said, there has been an increase of 1,000 tons in inventory.

A further assignment to the department is the responsibility of measuring mill performance, or the observance of rate of progress in operations, Mr. Driessen asserted. He said that the department studies all of these problems, in order that information may be put in the hands of the operating supervisors in order that they might exercise control and use the information in guiding general production.

The Thilco Foremen also heard a talk by Thomas A. Ryan, Appleton attorney, on his observations from a political standpoint while in the armed forces in Europe.

Specialties Makers May Apply for Price Relax

WASHINGTON — Manufacturers of gummed tape, glazed and fancy papers, nested cups and containers, fiber cans and fiber drums have been made eligible for individual price adjustments, the Office of Price Administration announced today. The action became effective August 14, 1946.

The preparation of industry-wide cost studies would require unusual effort and time OPA said, because of the great diversity and the large number of products manufactured by the firms involved. For these reasons, it is believed required price relief can best be provided by the individual adjustment method.

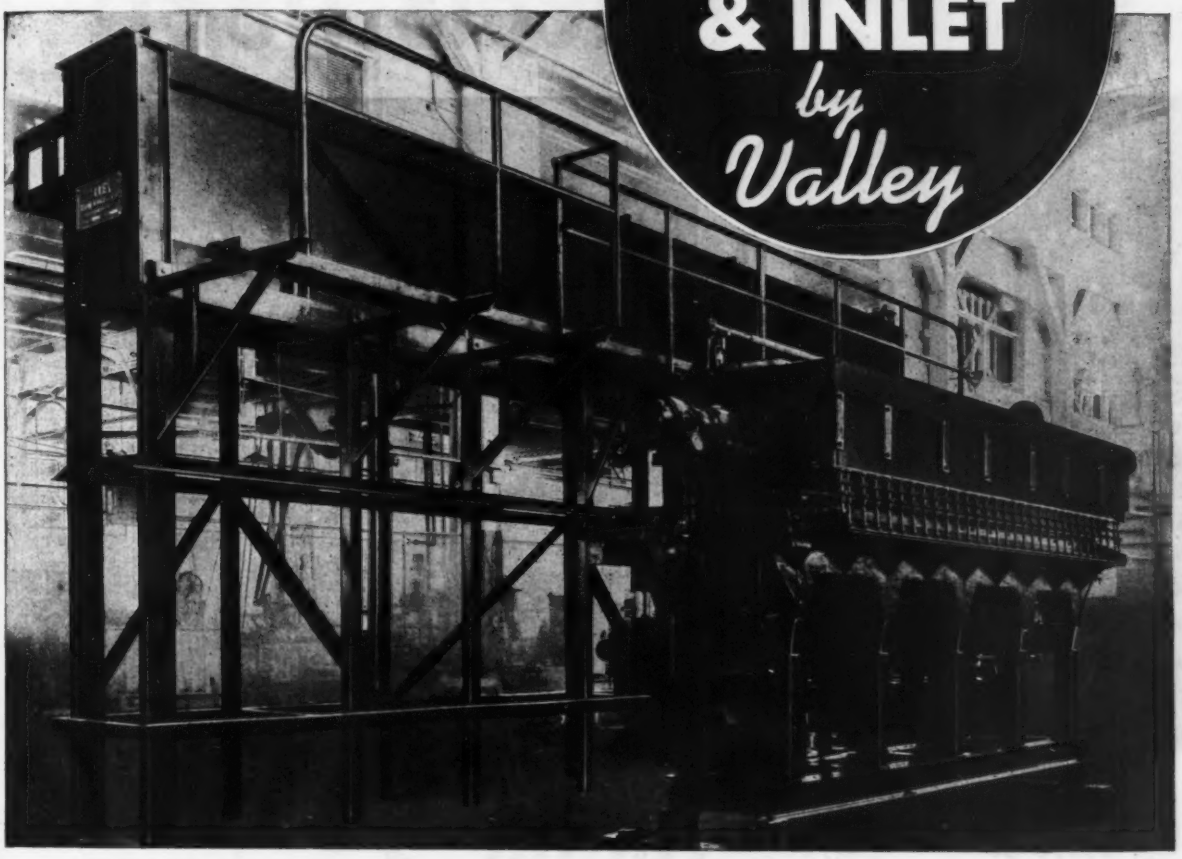
Percentages of profit to sales which will be used in making adjustments in each of the industries have been determined as follows:

Gummed tape, five percent; glazed and fancy papers, 3.5 percent; nested paper cups and containers, seven percent; fiber cans, six percent; and fiber drums, four percent.

(Amendment 3 to Supplementary Order 160—Individual Adjustments to Maintain Normal Peacetime Earnings for Certain Industries—effective August 14, 1946.)

AN ENGINEERING SERVICE*

HEADBOX & INLET by Valley



These facts are self-evident:

1. The secret of FORMATION is in *proper* flow to the wire.
2. Sheet *QUALITY* can be no better than this flow.

...and it is a proven fact that:

Valley has had outstanding success and enjoys a broad background of experience in providing the *most efficient flow* on many of the industry's leading papermachines.

* Flow to the wire starts from your fan pump; from there it is ONE RESPONSIBILITY, and that responsibility is Valley's great specialty.

VALLEY IRON WORKS CO. APPLETON WISCONSIN

Slices and Head Boxes • Screw Presses • Micro-Mist Spray Dampeners • Laboratory Equipment
Pulp Washing Systems • High-Speed Beaters • Breaker Beaters • Vortex Beaters • Plug Valves
Flat and Rotary Screens • Thickeners • Deckers • Paper Markers • Roll-Headers

Protects itself

New TOTALLY ENCLOSED FAN-COOLED TRI-CLAD MOTOR

1 TO 1000 H.P.

This improved, totally enclosed, fan-cooled motor has everything you want in a motor for wet and dirty locations—exposed to chips, stock, steam, acid or alkaline liquor, or weather. Windings, bearings, and rotating parts are well protected against exposure to such harmful materials. It combines the *extra protection* of the Tri-Clad* open motor with a *double-wall* construction of corrosion-resisting cast iron.

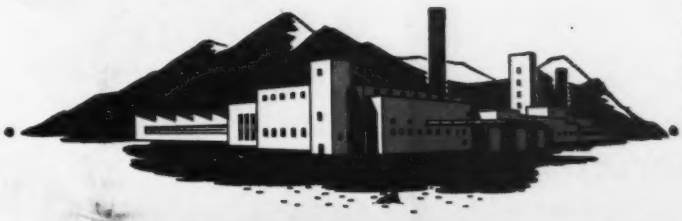
Reckoned strictly in terms of *motor cost per year*, its longer life and lower maintenance make it a low-cost motor for any job where dirt and wetness are encountered. At the same time, you are always more sure of faithful performance.

For full information on this new line of totally enclosed Tri-Clad motors, ask your local G-E representative for Bulletin GEA-4400. *Apparatus Dept., General Electric Company, Schenectady 5, N. Y.*

*Trademark reg. U.S. Pat. Off.

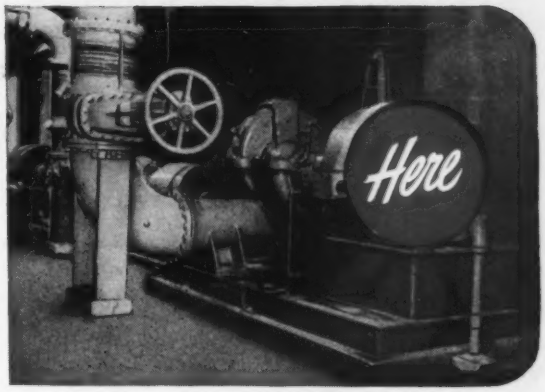
FROM DIRT AND WET

IN THE PAPER MILL AND AROUND IT



These 9 points of self-protection put this TRI/CLAD TEFC *motor ahead of its class*

1. A cast-iron, double-wall frame that completely encloses windings and protects punchings from corrosion.
2. Cast-iron end shields, ribbed for rapid radiation, machined to give a tight seal, yet easily removable.
3. A well-proved, pressure-relief greasing system which makes correct lubrication well-nigh automatic.
4. The cast-iron conduit box is diagonally split for wiring convenience. (Box is independently explosion-proof on explosion-proof motors.)
5. Leads are sealed in a non-shrinking compound where they emerge from frame.
6. Rotating, labyrinth-seal at bearing journal prevents infiltration of grit or liquids.
7. Large, free-flowing air passages that won't gather dust or plug up.
8. Latest insulation treatment over tough Formex* magnet wire.
9. Powerful yet quiet fan is removable, simplifying maintenance. (Non-sparking type fan for explosion-proof motors.)



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. . . the first, crystal-clear, transparent

CELLOPHANE TAPE

with CONTROLLED UNWIND

No more back-lash from too-sudden unwinding—no more sudden breakage from over-tight adhesives . . . .

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NO MORE SUDDEN BREAKAGE
Filmonize
SELF-SEALING TAPES
INTERNATIONAL PLASTIC CORPORATION
10 Park Place Morristown, N. J.
Makers of all types of self-sealing industrial tapes—cellulosic, metallic and paper.

Here's the crystal-clear tape that *is* different — the only tape with the new positive-action adhesive — the only tape with *controlled unwind*. C-1 comes off the roll exactly as you wish it — not too fast, not too slow — never too much, never too little.

Controlled unwind is the result of an *exclusive* International Plastic Corporation patent. It is available only on tapes made by International Plastic Corporation. As with all Filmonize Self-Sealing Tapes, *C-1 is guaranteed against manufacturing defects for one year from date of shipment from plant—on a replacement basis.*

On 1296" and 2592" rolls — in ½", ¾" and 1" widths — your wholesaler can give you prompt deliveries of C-1 Tape; other widths to order — in approximately two weeks' time.

Your wholesaler has Filmonize C-1 now. Get a roll and try it on your own heavy-duty dispenser. We know you'll say it's the finest self-sealing tape you have ever used.

When does a speed reducer need the reserve strength BACKBONE provides?

Sudden shock loads, sustained heavy loads, long periods of continuous running, and other adverse operating conditions, all demand something extra in load-carrying ability from a speed reducer.

It is under these conditions that Farrel reduction gears—the famous *Gear with a Backbone*—keep power transmission smooth and unimpaired. *Backbone* is the extra tooth area of the gears, formed where the helices meet to make the teeth continuous across the face. This puts the entire face width to work and provides reserve strength and load-carrying capacity.

Other features which contribute to smooth, efficient power transmission in Farrel speed reducers include rigid and accurately ground shafts properly mounted in roller bearings, and heavy section cases that hold rotating elements in precise alignment.

Farrel speed reducers are available in a wide range of ratios and capacities. Designs include single, double and multiple reduction units, as well as speed change units having two or more selective speeds, right angle drives and drives to meet special requirements.

Write for catalog No. 438, describing gears, or for information on rolls, calenders or any of the other products listed on this page.

FARREL-BIRMINGHAM COMPANY, INC.
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ROLLS: Chilled Iron, Dry Sand, Meehanite, Alloy Iron, Steel, Chromium Plated

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GRINDING MACHINES: Roll

CALIPERS: Roll

GEARS, CUT: Spur, Single and Double Helical (Farrel-Sykes Continuous Tooth Type)

SPEED REDUCING GEAR UNITS
SPEED INCREASING GEAR UNITS
FLEXIBLE COUPLINGS

Farrel-Birmingham

FB-335

Developed to meet YOUR Specific Operating Conditions . . .

NO MATTER how unusual the operating conditions in your plant may be, there are Sinclair *steam cylinder* and *valve oils* to meet them.

Sinclair *Steam Cylinder* and *Valve Oils* are made to provide dependable efficiency under *all* speed, temperature, pressure and moisture conditions, and other influences that affect lubricating performance.

Consult our engineers in selection of the most efficient oil for *your* specific operating conditions.

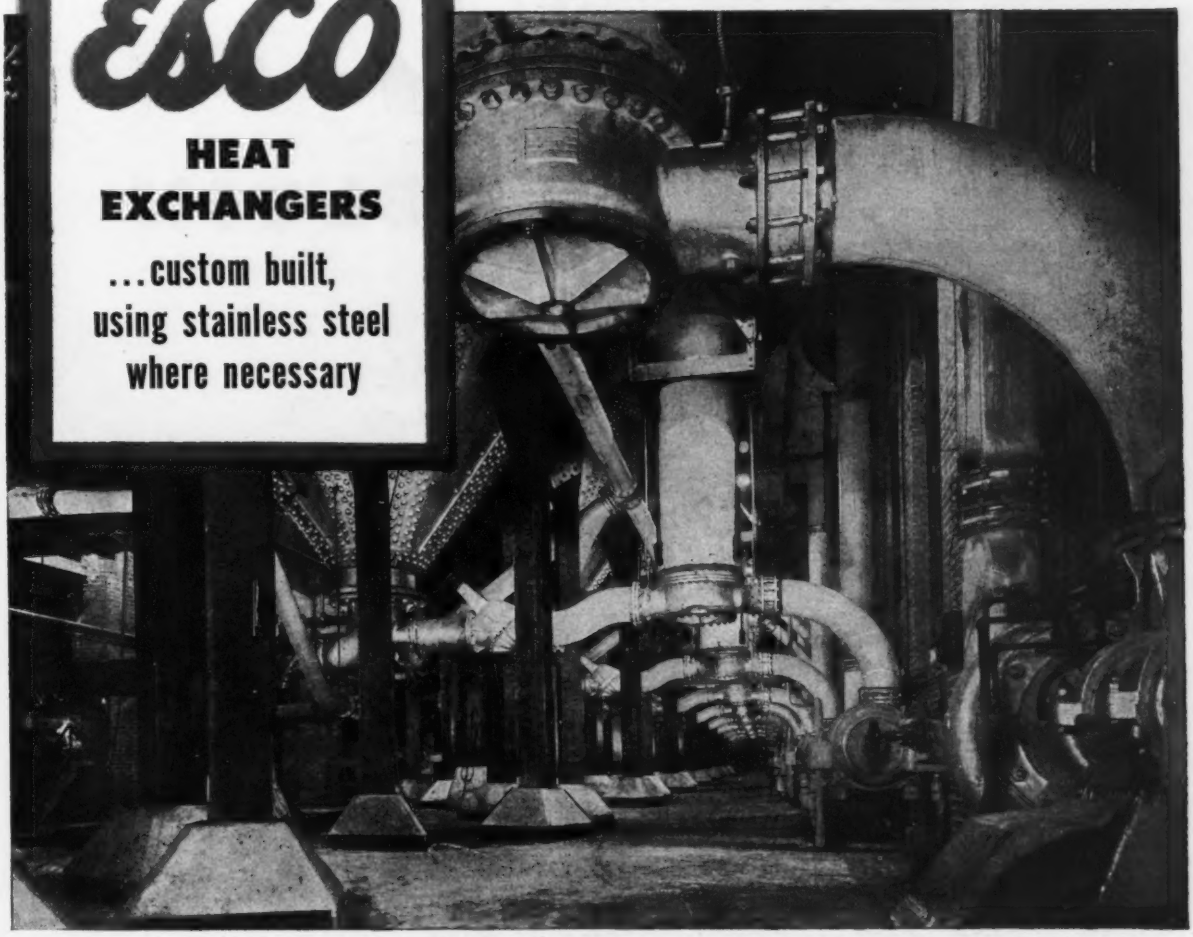
SINCLAIR INDUSTRIAL OILS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

ESCO

HEAT EXCHANGERS

...custom built, using stainless steel where necessary



Twelve ESCO Circulating Systems with ESCO stainless steel Heaters installed in one of the Pacific Coast's largest mills.

WHETHER the need be for heating or cooling, *ESCO* Heat Exchangers are individually designed to meet specific requirements and to pass the required Boiler Code for Pressure Vessels.

ESCO Digester Circulating System Heaters have built into them the experience of the best pulp mill engineers and technicians working with the *ESCO* engineering and metallurgical staff. As a result, *ESCO* Heat Exchangers give long dependable service, economical and trouble-free operation.

Your nearest *ESCO* representative will be glad to provide information about any pulp mill problem involving the use of stainless steel. Bulletins No. 155 "*ESCO* Circulating Systems," and No. 157 "*ESCO* Stainless Steel Products," will be mailed on request.

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KELGIN, the superior surface sizing agent, spells "unequalled results" in the preparation of paperboard for gloss ink printing. It fully controls penetration of printing ink oils and waxes . . . produces a smooth, dense surface . . . provides brilliant colors and a high gloss.

KELGIN is ideal for water box application in the calender stacks. It is economical—simple to apply. Kelgin will not cause picking, foaming, sticking to the rolls. It is readily soluble in hot or cold water.

KELGIN is a product of Nature—free of impurities—and processed to produce consistently uniform results. Consult our Technical Department about your commercial application with KELGIN— naturally there is no cost or obligation. Just drop us a line today.

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Timely Tips to the Young Mill Man

From E. I. du Pont de Nemours & Co. (Inc.)
Grasselli Chemicals Department
Wilmington 98, Delaware

1 YOU HAVE A RIGHT TO BE PROUD of being in the papermaking business. This is an old craft that requires skill. The young man who acquires this skill and has initiative, patience, and *the desire to succeed* will reach the top in this essential industry.

2 AND REMEMBER THIS: don't be afraid to ask for advice or help on any probem you may have. The old-timers in the papermaking business can answer many of your questions. In addition, our staff of chemists at Du Pont is always glad to be of service to you.

3 AT DU PONT, chemists are constantly working on problems involved in good papermaking. We offer technical information and chemicals which can help you in making better paper. For example, "Lignasan" bactericide and fungicide is one of Du Pont's chemicals for your industry. Bled into the system at trouble spots, or added at the beater—about four ounces per ton of dry fiber—"Lignasan" controls slime, keeps the system clean, all the way to the dry cans. Almost any old-timer can tell you about it—or check with your Du Pont man next time he calls.

Du Pont Lignasan
REG. U. S. PAT. OFF.
Bactericide and Fungicide
CONTROLS SLIME—PRESERVES PULP

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

DU PONT
REG. U. S. PAT. OFF.

Package Machinery Buys War Plant

SPRINGFIELD, Mass. — The Package Machinery Company has acquired the huge Pratt & Whitney plant in East Longmeadow, Mass., from the War Assets Administration for necessary expansion of the company's business in manufacturing wrapping machines. Purchase price was $1,750,000. Located only five miles from the business section of Springfield, the plant which was erected during the war at a cost of approximately $3,000,000 is one of the largest and most modern manufacturing properties in Western Massachusetts.

Demands for the company's wrapping machines have grown to such an extent that present facilities have proved seriously inadequate. As a consequence, nearly a million and a half dollars worth of current manufacturing had to be sub-contracted in various cities throughout New England and other states. This work will now be performed in the new plant which provides 361,000 square feet of floor space on a 40-acre tract of land. Newly acquired machines will be added to existing equipment, and the number of employees increased from 650 to an expected 900 within a year, with an eventual force of 1,500.

The accelerated program of the packaging of foods, drugs, soaps, candies, vegetables, textiles, etc., for sanitary and other merchandising reasons has caused a large back-log of orders not only for the Package Machinery Company but also for other manufacturers in the industry.

Rayonier Sales Up a Third For First Quarter Year

Sales of Rayonier Incorporated for the three months ended July 31, 1946, the first quarter in its current fiscal year, were $8,400,000, compared with $6,374,000 for the first quarter of the previous fiscal year, President Edward Bartsch reported to stockholders at the annual meeting this week. The figures are not strictly comparable, he pointed out, as the Shelton, Wash., mill, now practically at capacity operation, was not in operation during the July 1945 quarter while current sales also reflect higher prices which became effective during the early part of 1946.

Preliminary figures indicate that net profit before federal taxes will approximate $1,100,000 for the July quarter, compared with $938,000 for the same period of 1945, equal after taxes and preferred dividends to 38 cents per share on the common stock, against 16 cents per share for the 1945 period.

President Bartsch stated that the company applied to the OPA prior to June 30 for price increases on certain grades of pulp, which requests are still pending. He disclosed that his option granted in 1943, to purchase 30,000 shares of the company's common stock was exercised in full on July 23.

Jonathan B. Lovelace, president of Capital Research and Management Corporation of Los Angeles, Cal., was elected a director, succeeding Eugene Bashore.

Following the meeting of stockholders, the directors declared the regular quarterly dividend of 50 cents per share on the $2 dividend cumulative preferred stock, payable October 1st to stockholders of record September 13th. William F. Weber was elected Secretary.

B. M. Thomas Joins Ohio Boxboard Organization

PITTMAN, Ohio — B. M. Thomas, formerly plant manager for Container Corporation of America at Manayunk, and more recently vice-president and production manager for American Coating Mills at Elkhart, Indiana, joined the staff of the Ohio Boxboard Company on August 1. Mr. Thomas will initially assist in the mill rehabilitation program and, ultimately it is expected, that he will assume supervision of the operating departments in the production division.

International Net Almost Trebled

International Paper Company and its subsidiaries had a net profit in the first six months of 1946 of $11,477,417 after all deductions and provision of $9,610,943 for taxes, according to the semi-annual statement of Richard J. Cullen, chairman.

Net profit for the corresponding period of last year was $4,411,071 after $13,134,092 provision for taxes and after deducting $1,490,744 earnings of foreign subsidiaries, before interest on obligations held by International Paper, transferred to reserves.

For the quarter ended with June the net profit was $7,235,905, compared with $2,300,827 a year before.

Sales for the six months increased to $129,548,885 from $118,431,254 for the first half of 1945, while those for the June quarter were $70,057,386, against $62,450,327 in 1945.

Income for the six months of $132,258,740, compared with $121,484,272 last year, is after deducting a non-operating and non-recurring expense of $418,818 representing premium and unamortized discount on bonds retired, less reduction of Federal income taxes.

The net profit includes net earnings of foreign properties amounting to $932,865 for the three months and $1,954,963 for the six months ended with last June.

The report states that the income includes charges of $334,579 for the three months and $613,640 for the six months of this year, which in effect convert net earnings of foreign subsidiaries substantially to the United States dollar equivalent.

Provincial Paper Plans Refinancing

MONTREAL — Provincial Paper Limited plans retirement of all of outstanding $2,740,000 5½ percent first mortgage Series A bonds of company which will be called for redemption on November 1, 1946, and $3,500,000 7 percent cumulative redeemable preference shares will be called for redemption on October 1, 1946.

Abitibi Power & Paper Co., Ltd., which owns all the outstanding 100,000 common shares of no par value of company is subscribing for an additional 250,000 common shares of no par value at a cost of $4,000,000.

Provincial Paper Limited is creating a new issue limited to 20,000 shares ($1,000,000) of $50 par vallue 4 percent cumulative redeemable preference stock. These shares have been sold to Wood Gundy and Company Limited as a result of this transaction. Provincial Paper Limited will have no funded debt and only $1,000,000 of preference stock with an annual dividend of $40,000 ranking ahead of its common stock.

Dividend payments on the outstanding $3,500,000 of preference shares has been made regularly each year since these shares have been outstanding from 1927 to date. These dividends of $245,000 per annum compare with the proposed preferred dividend requirements of new shares of $40,000 per annum.

Kimberly-Clark Profits Show Sharp Gain

Semi-annual report of the Kimberly-Clark Corporation and its subsidiaries for the six months ended on June 30 last, shows a net profit of $1,579,020 after all charges, including $914,918 provision for taxes and $35,859 loss of subsidiaries.

The profit is equal to $2.25 a share of common stock and compares with the net profit of $1,398,493, or $1.95 a common share for the initial half of 1945, when $2,185,600 was provided for taxes and $40,500 was deducted for loss of subsidiaries.

Net profit for the June quarter this year was $819,142, or $1.18 a common share, compared with $696,320, or 97 cents a common share, for second quarter a year ago.

Monsanto Staff Picnics At Riverside Park

SPRINGFIELD, Mass.—More than 500 employes at the Indian Orchard plastics division of Monsanto Chemical Company attended a clam bake sponsored at Riverside Park in Agawam Sunday by the management of the Monsanto branch and officials of Monsanto Industrial Union, local 288.

Guests included Felix Williams, general manager of the Indian Orchard division; E. Watt Dwyer, personnel director of the plant.

When you re-equip your mill,

REMEMBER THIS:

The more Stainless Steel you use, the less trouble you'll have with corrosion and abrasion

LONG BEFORE THE WAR, progressive mills had discovered that they could solve many of their toughest corrosion and abrasion problems with U·S·S Stainless Steel. The intensive operation of the past few years which took a staggering toll from less effective materials, merely emphasized the superiority of Stainless.

- **Digester strainers, for example, both corrode and erode rapidly, or give trouble from rapid lime scale formation. When made of U·S·S Stainless Steel these difficulties were retarded or entirely eliminated.**

- **Digester outlet nozzles, which are subject to severe abrasion due to the high velocity at this point, took on a new lease of life when lined with light gage Stainless, relatively inexpensive and easy to install.**

- **U·S·S Stainless Steel tubes in the first effect of sulphate evaporators lasted 16 times as long as carbon steel tubing.**

- **In cylinder molds, washers and save-alls, U·S·S Stainless Steel winding wire and wire cloth expanded life from weeks to years.**

- **When Stainless Steel replaced ordinary steel in beater bars and Jordan fillings, corrosion ceased, abrasion was reduced and stock discoloration and contamination troubles were ended.**

But why go on? Practically without exception, U·S·S Stainless Steel wherever applied has proved its ability to insure greater permanence and reduced maintenance costs. So when you re-equip, do more than just *replace* worn-out equipment. Make it a point to use U·S·S Stainless Steel to *improve* on former construction where conditions are severe. Our Stainless Steel experts will gladly cooperate with you to insure optimum results.

U·S·S STAINLESS STEEL

USS STAINLESS STEEL — UNITED STATES STEEL

SHEETS · STRIP · PLATES · BARS · BILLETS · PIPE · TUBES · WIRE · SPECIAL SECTIONS

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CARNEGIE-ILLINOIS STEEL CORPORATION, *Pittsburgh and Chicago*
COLUMBIA STEEL COMPANY, *San Francisco*
NATIONAL TUBE COMPANY, *Pittsburgh*
TENNESSEE COAL, IRON & RAILROAD COMPANY, *Birmingham*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

UNITED STATES STEEL

B-M-T Training Plan Is Approved by V-A

SAN FRANCISCO—Veterans with an eye toward a sales career and paper distributors seeking fresh help are much interested in the "on-the-job" sales training program developed by Blake, Moffitt & Towne, pioneer Pacific Coast paper distributors. Under the plan which has just been approved by the Veterans Administration, veterans who are married may collect up to $90 a month in addition to their regular salaries, provided the two incomes combined do not exceed the amount normally paid a fully-trained employee in the same type of work. Single veterans are entitled to as much as $65 a month on the same terms.

The comprehensive program worked out by the management of the Company consists of two phases, each divided into two parts, academic and practical. The first phase is a thirty-three-lesson course in which the trainee studies the various manufacturing processes involved in the production of paper and paper products. Supplementing the lectures are motion pictures showing the manufacture of paper from the time the pulpwood is cut in the forest until the finished produce comes off the huge papermaking machine. Later instruction stresses sales opportunities and basic salespoints for each type of paper.

This course of academic instruction, covering a period of six months, is conducted by Company executives: J. A. Cruner, Assistant to the Manager; R. F. Berkeley, Jr., Printing Paper Sales Manager; and L. C. Conner, Wrapping Paper Sales Manager. Concurrent with classroom work, the students gain on-the-job practical experience throughout the Company's San Francisco plant.

The second phase of the training is designed to provide practical application of the technical knowledge gained during the first six months of instruction. The trainee is advanced to the floor sales and telephone order departments where he has the opportunity to test his sales ability by dealing directly with customers, checking samples and suggesting types of paper for specific uses. During this period he attends classes in salesmanship conducted by the Extension Division of the University of California to further his knowledge in the theory and practice of salesmanship.

With the completion of this course, the trainee is now thoroughly qualified to render traditional B. M. & T. service. He has received an intensive training in paper, the nation's sixth largest industry.

Commenting on the program, C. W. Meilke, B. M. & T.'s General Manager has this to say:

"Since the end of World War II, our experience with our veteran employees has been most encouraging. During their period of service in the armed forces they were subjected to many intensive training programs and are prepared to assimilate new material rapidly.

"A survey just taken shows that over 25 percent of our male employees are veterans, and we want each of them to build a solid foundation in our business in the shortest possible time. We are impressed with the ability and spirit of the veteran, who during the war years has acquired self-reliance, resourcefulness, cooperation, self-discipline, and an understanding of others. The program which we have been developing for the past two years has now been successfully tested at our San Francisco headquarters and extended to our other fifteen divisions."

The task of operating sixteen training courses—one for each of the Blake, Moffitt & Towne divisions in six Western states—calls for careful planning and direction. Personnel Manager, L. J. Dellwig, in cooperation with company executives, is now working on a plan to bring all trainees to four metropolitan divisions of the company for their academic training.

Bleached Waxing Goes to $160 Ton

WASHINGTON — Manufacturers' base ceiling prices for all bleached waxing papers were fixed at the same level—$8 a hundredweight, or $160 a ton, f.o.b. mill—by raising the maximum prices of 100 per cent sulphate grades, in a ruling handed down by the Office of Price Administration this week. This action, effective August 18, will increase the ceiling price of Northern Bleached Sulphate approximately 75 cents a hundredweight and a corresponding increase on Southern Bleached Sulphate is expected to result. However, the increases permitted in some cases are higher.

OPA explained that bleached sulphate waxing paper makes up only a small but essential part of the waxing papers, which, after waxing, are used in packaging food. Many minor products, which require the special qualities of 100 per cent sulphate paper, such as lettuce liner paper, usually sold at the same price as the sulphite grades.

At the same time, differentials for other than the standard weight of waxing paper were established in accordance with industry practice. OPA also changed the definition of bleached waxing paper to include basis weights up to 75 pounds, which will extend coverage of the regulation (Revised Maximum Price Regulation 129) to include heavy waxing grades such as are used in making waxed drinking cups.

OBITUARY

Frank Beckwith Towne

HOLYOKE, Mass. — Frank Beckwith Towne, 81, one of Holyoke's most distinguished industrial and civic leaders and for 58 years treasurer of the National Blank Book Co., died Aug. 9 at his home following a prolonged illness.

Mr. Towne, who began his career in Holyoke 64 years ago, at the age of 17, had been in poor health for the past decade, but despite his physical handicap carried on with the leadership of the National Blank Book Co. He had acute arthritis, yet up to about two years ago, kept up his business interests, intensified by the war, and followed the course of his many civic interests.

In the middle of July, 1945, he was stricken with a cerebral hemorrhage. On July 28, 1945, his wife, Harriet (Peal) Towne, died. They had been married 51 years.

His distinguished service to Holyoke included work and support for the Holyoke Hospital, YMCA, Community Chest, Boys' Club, Second Congregational Church, Grace Church and many other institutions.

He leaves one son, Richard P. Towne, who succeeded him as treasurer of the National Blank Book Company; two brothers, Joseph M. Towne, president of National; and Edward S. Towne, vice-president.

Richard H. Allen

BENNINGTON, Vt., Richard H. Allen, 82, one of the oldest residents of North Hoosick, active for many years in school, church and Republican activities in the town of Hoosick, and formerly foreman at the Stevens & Thompson Paper Co., died recently at the Mary McClellan Hospital in Cambridge. He had been in poor health for several months.

Born in North Hoosick on Dec. 5, 1864, he was a lifelong resident of that town. For many years, before his retirement several years ago, he was foreman in the North Hoosick mill of the Stevens & Thompson Paper Co.

Charles Watkins

DALTON, Mass. — Charles Henry Watkins, 69, for many years connected with Crane and Co., Inc., died August 7 at his home. Death was attributed to a heart condition. Until his retirement two years ago, he had been employed for 40 years as a heating engineer at the Crane plant.

Ernest A. Newman

CROSSETT, Ark.—Ernest A. Newman, 50, superintendent of the Crossett Paper Mill, died in a Shreveport hospital August 8. He is survived by his widow, a son and a daughter. Burial was in Fountain Hill cemetery.

... it will if you scour felts with easy-rinsing NOPCO* Syntergent K

Scouring felts on or off paper-making machines is a tough cleaning problem and an even tougher *rinsing* problem. But these usually difficult problems are easily solved by NOPCO Syntergent K. A solution made by adding NOPCO Syntergent K to warm or cold water provides a copious and persistent lather of outstanding detergent and wetting properties and *the material itself rinses out freely and completely.*

In refreshing contrast to the difficult rinsing characteristics met with in the use of many felt-washing compounds, easy-rinsing NOPCO Syntergent K assures that no material will be picked up by the paper-sheet and carried to the Yankee drier. This is important, because such material might cause "blowing" or "bagging" as the result of surface lubrication. NOPCO Syntergent K enables the creping doctor blade to work effectively, because the sheet clings to the drier surface—until there isn't a wet spot left.

Dispersible and Stable NOPCO Syntergent K mixes readily with warm or cold water in all concentrations, forming solutions with a Ph of 9-9.5. It is wholly void of inorganic salts and possesses a 30% activity. Two percent NOPCO Syntergent K is dispersible and stable in 5% sulfuric acid and in 4% sodium hydroxide solutions. Its detergency is not impaired by these solutions, nor by other dilute acid or alkaline mediums. NOPCO Syntergent K is also compatible with soap solutions. Write for complete information.

NATIONAL OIL PRODUCTS COMPANY, Harrison, N. J.

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NOPCO EVOLVED THROUGH RESEARCH

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NOPCO Syntergent K

NEW, IMPROVED FELT-SCOURING COMPOUND

You're the One who feels "Chipper"

...when you get the Extra-Output from

SIMONDS CHIPPER KNIVES

Simonds special corrosion-resistant T-18 Steel makes it possible to heat-treat these knives above the operating heat of the chipper. And this means that Simonds "Red Back" Chipper Knives hold their cutting edges under tough conditions without cracking or chipping out. In fact, they hold their edges far longer . . . and produce more uniform chips . . . than regular knives. Waste is chased — *out!*

Simonds Chipper Knives are made to specification for all makes of machines. Common sizes are stocked for prompt delivery. See your dealer, or write the nearest Simonds office.

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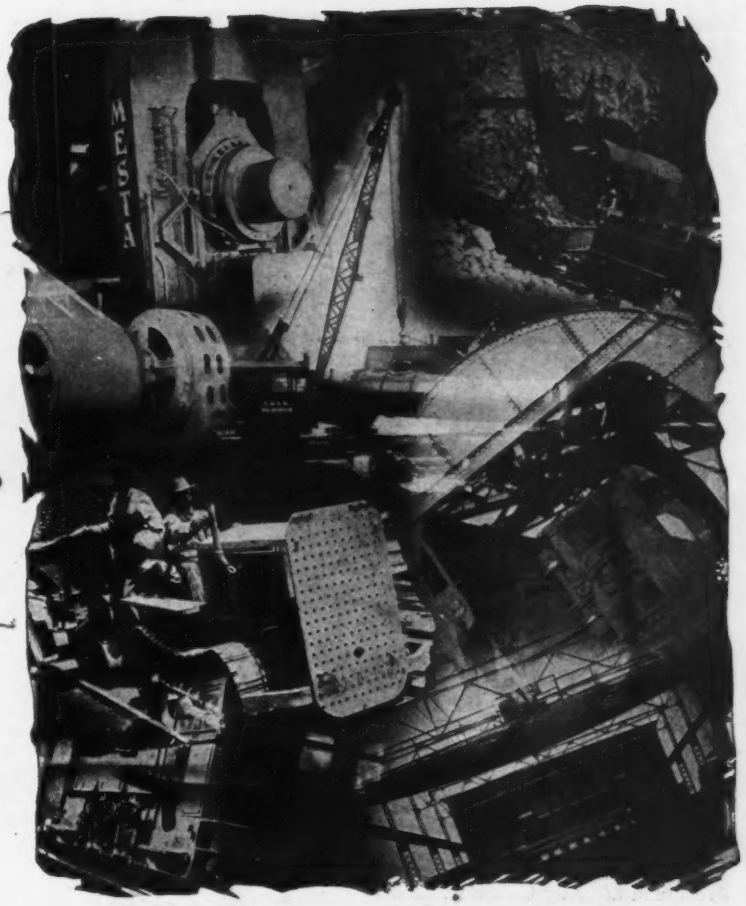
"No bearing troubles..."



...with Tycol E.P. Lubricants"

Not a bearing overheated . . .
Service-life doubled . . .
Races undamaged . . .
Better performance . . .
Maintenance costs cut . . .

— were the statements made recently by a lubricating engineer. "Yet," he went on, "the anti-friction bearings in our plant operate continuously under severe heat and moisture conditions — tremendous loads."

This is one of the many uses of Tycol E. P. Lubricants. For more information call, write, or wire your nearest Tide Water Associated Office.

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INDUSTRIAL LUBRICANTS

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TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE - NEW YORK 4, N. Y.

LUBRICATION—"ENGINEERED TO FIT THE JOB"

Street Succeeds Brown as Downingtown President

DOWINGTOWN, Pa.—Ellis Y. Brown, Jr., has resigned as president and treasurer of the Downingtown Manufacturing Co., Edward T. Street has been elected president. Brown resigned for reasons of health, but he continues as a director and chairman of the executive committee. He has been associated with the company for 44 years in various executive capacities, and has had the title of treasurer since 1903.

Edward T. Street, new Downingtown president, has been with the company for 17 years, first as chief engineer. About a year ago he became vice-president in charge of sales. With this background of experience, Mr. Street will naturally give special attention to sales and engineering.

Enright A. Ellis is now treasurer of the company, in addition to being vice-president in charge of manufacturing. He has been with the company for 12 years, a vice-president since 1944.

Ellis Y. Brown, 3rd, a son of the retiring president, remains as secretary of the company, and is in charge of all purchasing. He has been with them since 1933.

Homestead Valve Perfects Hypressure Steam Cleaner

CORAOPOLIS, Pa. — A new postwar streamline design steam cleaning machine known as Model JO Hypressure Jenny Instantaneous Steam Cleaner has been perfected by Homestead Valve Manufacturing Company. Model JO Highpressure Jenny Steam Cleaner is a compact, portable, streamlined, steel-fabricated, electric-welded unit with all machinery end mounted and fully accessible. It can be furnished with or without a removable, die-formed steel machinery cover. Large, semi-steel wheels and a steering tongue afford easy portability and maximum utility permitting easy transfer from one cleaning job to another. Oil or gas fired units are optional, and the only requirements for operation are an electric current outlet and a hose connection to water supply.

Hypressure Jenny is recommended for all types of industrial, automotive and farm cleaning applications — for cleaning mill and industrial equipment; engines and chassis of passenger cars, buses and trucks; production, road and farm machinery; floors, walls, windows and building exteriors, and for cleaning, sterilizing and disinfecting on dairy and poultry farms.

Cleaning is accomplished by a highly atomized mixture of steam, hot water and cleaning compound applied under pressure through a spray nozzle. Normal operating pressures range from 80 to 120 pounds at 90 gals. per hour water capacity. Where powerful flushing and rinsing action and extra water capacity are required, the use of the Adjusta-Blast Gun is recommended, which increases water capacity up to 480 gals. per hour.

EDWARD T. STREET
Made Downingtown President

New Catalog D-2, Gives Engineering Data

"Choosing wire, strip, or rod of uniform dimensions for difficult high temperature or corrosive applications is made easier by reference to the engineering data and illustrations in a new catalog offered by Alloy Metal Wire Co., Inc., Prospect Park, Penna.

Alloy Metal's catalog sections include engineering information on strength, electrical resistivity, modulus of elasticity, heat treatment, temperature limits, and magnetic properties. The metals covered are the high nickel content alloys, Monel, Nickel, "Z" Nickel, "L" Nickel, Inconel, and specialized Monels ("K", "R", and "KR") for machining and heat treating properties.

The new catalog, which is being sent in response to all requests made on business letterhead, contains sizes, weights, tolerances and other information helpful in writing specifications and ordering. It also includes many illustrations of wire, rod, and strip used in springs, wire cloth fastenings, paper mills, jewelry, mechanical and electrical applications.

Bulkley, Dunton Issues New Saveall Literature

An illustrated brochure on Sveen Pederson Flotation Saveall has been published by the Bulkley, Duntain Organization, 295 Madison Avenue, New York, distributors of Sveen Pedersen savealls. The brochure describes the salient features of the flotation type saveall, which is claimed to clarify white water so thoroughly as to permit its reuse in the paper or board mill system. In addition to the saving of fiber, fuel, water, and chemicals, Sveen Pedersen is also recommended for the solution of stream improvement problems. The unit is obtainable in eight sizes to fit any paper or board machine.

Vibrometer Operates on Tuned Reed Principle

The Davey Reed Vibrometer is an instrument of vest pocket size, weighing only 5 ounces, for accurately measuring machine vibration and comparing amplitudes. Its range is from 450 to 50,000 cycles per minute. It operates on the tuned reed principle. A steel reed is fed out from the body of the instrument and when the reed comes into tune with the machine vibrations it will snap into a sharp vibration. A machine vibration of .001" will produce a reed vibration of approximately one half inch. Vibration frequency in cycles per minute is read directly from a graduated dial. In cases where there are several disturbing frequencies or vibrations are of complex wave form, the instrument will pick out each of the frequencies separately and evaluate its comparative amplitude. The upper end of the scale is valuable for noise analysis. When the reed is plucked it will produce a musical note and if it is tuned to correspond to the noise emanating from the machine, the noise frequency may be determined. There are cases in which this simple instrument can replace a complex noise analyzer. The Reed Vibrometer is manufactured by the Vibroscope Co., 6 East 39th Street, New York 16, N.Y.

Reliance Engineering Opens More Sales Offices

CLEVELAND — The Reliance Electric & Engineering Company is establishing additional sales offices and expanding its present field sales force. George E. Law, who, since his return to the Reliance organization from the armed services, has represented the company in Minneapolis, will head a new branch office in Appleton, Wisconsin. M. J. Sandling, who has served Reliance in western Michigan for the past several years, will head a new office to be opened in Grand Rapids. He will be assisted by W. F. Cliff, electrical application engineer, who recently joined the Reliance organization. William K. Schlotterbeck, another Reliance veteran to receive his discharge recently, rejoins the Philadelphia office as sales engineer. E. H. Koontz, sales engineer, who during the war handled subcontracts in a naval ordnance program for Reliance in Minneapolis, is now with the company's New York office.

Other sales engineers recently assigned to field sales offices are: R. L. Custis, to New York; D. M. Larson, to Minneapolis; A. C. Perrin, to Chicago; and Albert Mann, to Detroit.

Supervisors Play on Day Off

NEENAH, Wis. — About one hundred members of the Lakeview Supervisors' Club of Kimberly-Clark Corporation and their guests had their annual picnic August 7 at Stroebe's Island. The Whizzers were defeated by the Steelers in both the tug-of-war and the softball contest.

Question: *What is sure to become the largest single new factor in the paper and packaging fields?*

Answer: **American Anode latices and mixes** *for coating and impregnating paper...*

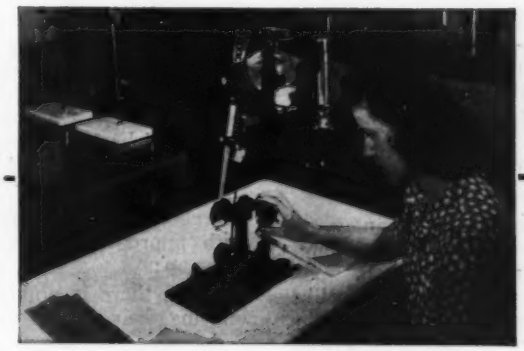
That's because American Anode latices and mixes offer the *modern* way to coat and impregnate paper.

... Modern, because American Anode latices and mixes are water dispersions—no dangerously explosive solvents used—no cumbersome and costly solvent recovery systems needed.

... Modern, because of the wide variety of new and old materials that can be used—GEON, HYCAR, Saran, neoprene, natural rubber, and GR-S—individually or in combinations.

... Modern, because American Anode's years of experience, constant research and unusually complete development facilities mean that you'll get the latest, up-to-the-minute information on methods—up-to-the-minute help in solving existing problems, or even starting a new business.

If you have any interest in coating or impregnating paper, please write for more information about this new and *modern* method. Department AD-9, American Anode, Inc., 60 Cherry Street, Akron, Ohio.



The American Anode laboratory in Akron is equipped with the latest and most modern paper testing equipment, and is staffed with people who know how to use it.

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INCORPORATED

NATURAL AND SYNTHETIC RUBBER LATICES, WATER CEMENTS AND SUSPENSIONS

PAPER TRADE JOURNAL

Title Reg. U. S. Pat. Off.

W. L. Cook, Editor

Demand With Jet Propulsion

In the course of serving the interests of its own membership to an accurate understanding of market conditions in the materials that they buy, the National Association of Purchasing Agents almost as directly often serves the suppliers. This is particularly true under present conditions, when as of recent weeks, the Association has been scanning the paper market, and passing its conclusions along to big industrial and trade users of paper. Without pulling any punches or receding from its position as representing the buyer, this Association has honestly said things on behalf of the paper industry which the industry might say for itself.

The main trouble right now is that demand is ahead of supply and running faster than even record production can follow. Under the direction of Chairman T. A. Corcoran of the Paper Committee, whose intimate contact with the business comes through his identity with the Louisville *Courier-Journal* a condition is stated and a caution is given in a recent bulletin.

"For several months production of all papers has been slightly in excess of theoretical capacity. But demand has managed to keep ahead, and it continues to grow. One report has this heading: 'Much Paper, But Still Not Enough.' Another comes to this conclusion in its last paragraph: 'The immediate future outlook is one of greater demand than supply.'

"As buyers, we should be sure that we do nothing to add to the artificiality of this demand. In the long run, we would be better off to postpone building inventories, in spite of an apparent profit now in the face of increasing prices. It would be wise to throw on the market now any stock of paper for which you have no present use.

"Manufacturers would be wise to do anything they could do to discourage building of excessive inventories. Anything they could do to stabilize prices would be helpful to the situation. For neither buyer nor seller will benefit, in the final analysis, from a runaway paper market."

On the subject of newsprint he speaks as a buyer, but he also looks for the prospect ahead.

"As in most other paper lines, demand manages to keep ahead of an ever-increasing production of newsprint. North American production in the first six months of 1946 increased 24 per cent over the like period of 1945. Consumption of U. S. users for the same period increased 26.5 per cent. North American stocks decreased 7,000 tons during June to a total of 540,416 tons, approximately seven per cent less than a year earlier.

"On the bright side is the definite scheduling of newsprint from Finland beginning in September. These shipments were originally planned for New York and the Pacific Coast only, but some shipments are now scheduled for New Orleans as well. Another bit of sunshine is the maturing of plans for the Coosa River Newsprint Co. in Alabama. Contracts on an 'if and when' basis are about ready to be sent to prospective customers. Undoubtedly, the recent price increase will hasten these plans."

As to fine papers, no immediate optimism is held out by E. E. McCulley, in respect to fine paper availability in this quarter. The two-week shutdown in some mills was extended for various additional times, due to lack of pulp. Several mills report cancellation of, or reduction of their existing pulp contracts.

Sulphite grades continue in extremely short supply, large tonnage in single shipments being almost impossible to secure. At present, it looks as though quite a few mills will have extreme difficulty in operating full time and it seems reasonable to expect that some will not make it. If many of them are forced back to a three-, four- or five-day operation, quotas will, of necessity, be substantially reduced. In an already tight market, the effects of reduced production will be felt at all levels.

From the Washington point of view, Robert Porter, of Wilcox-Walter-Furlong adds, it is now common knowledge that OPA is sorry it rejected the proposed increase, and it is also stated in the paper trade, that OPA will allow an interim price increase very shortly to take care of the situation until the entire price structure can again be reviewed. Therefore, there may be an increase on all paper lines in the very near future. This increase will, in my estimation, not only apply to book papers, writing papers and rag papers, but will run down through the entire field.

Reports in the paper industry indicate Scandinavian pulp will go over the $100-a-ton mark within the next month or so. They are now offering unbleached sulphite in New York at $97 to $97.50 a ton without any freight allowance, which is a break in the OPA ceiling structure. It is to be expected, with money revalued by 14 per cent, this difference will be added to the selling price of the pulp.

Quite necessarily, the price of pulp will rise in Canada which, in turn, means that the American pulp mills will sell at the same price. We, therefore, can expect sizable increases in the fourth quarter. Already, there have been increases made by some paper mills during the past two weeks.

As to government purchases, the Government Printing Office is now out for large tonnages which are not on its regular third-quarter schedule. These tonnages are quite naturally going to have to be taken up even though it be a directive. Some of the foreign governments are again asking for quotations on writing paper and book paper on the direct basis which had been eliminated for awhile.

Pulp shortage is dealt with by H. L. Weber, Fibreboard Products, Inc. He lists four main points with appropriately organized sub-points. Then he sums up:

While there is nothing to stop the Swedes from offering their pulp at any price they want, just how a domestic purchaser can legally buy their pulp at higher than OPA prices, with OPA reinstated, is something else.

From all this, it looks as though the wood pulp shortage will continue, and that it would be reasonable to expect some increase in pulp prices either right now or in the immediate future.

If you're confused on the pulp situation—move over . . . the GI's had a word for it.

Northeastern Wood Utilization Council to Meet October 2

A conference on new developments in hardwood pulp will be held at Syracuse University, Syracuse, N. Y., on October 2nd. Attendance will be by invitation with special emphasis on pulp mills in New England and New York. Information may be obtained from the Northeastern Wood Utilization Council, P. O. Box 1577, New Haven 6, Conn.

The tentative program is as follows:

Hardwood Pulp Resources of the Northeast, by V. L. Harper, Northeastern Forest Experiment Station.

Recent Developments in Scandinavia, by Edwin C. Jahn, New York State College of Forestry.

German Work on Hardwood Pulping, by Eduard Farber, Timber Engineering Company.

Problems in the Utilization of Hardwoods for Pulp, by G. H. Chidester and John N. McGovern, U. S. Forest Products Laboratory.

Application of Neutral Sulphate Semi-chemical Process to Northern Hardwoods, by M. W. Phelps, Technical Service, Solvay Process Company.

Research on Hardwood Pulp, by C. E. Libby, New York State College of Forestry.

Mechanical Pulping of Hardwood.

Economies in Pulpwood Production, by John A. Willard, Bigelow, Kent, Willard and Company.

Recent Developments in the Utilization of Sulphite Waste, by Robert S. Aries, Director, Northeastern Wood Utilization Council.

TAPPI Notes

Clarence J. West, Jr., formerly of the Army is now in the Pulp Department of the Kimberly-Clark Corporation, Kimberly, Wis.

T. Linsey Crossley is now connected with the Training and Reestablishment Insitute, Toronto, Ont.

W. H. Graebner is now resident manager for the Marathon Corporation, Menasha, Wis.

Daniel H. Guterman, formerly of the Ben Mont Papers Inc., is now general manager of the Starbuck Mfg. Company, Greenfield, Mass.

Heikki Sihtola formerly of A. Ahlstrom O/Y is now with Veitsiluoto, O/Y, Veitsiluoto, Finland.

W. L. Cassiday, formerly of Hummel & Downing is now in the Industrial Department of W. R. Grace & Company, 7 Hanover Square, New York 5, N. Y.

Capt. Charles E. Reilly, formerly of the Army is now plant manager of the Chlorox Chemical Company, Atlanta, Ga.

Lewis B. Miller, formerly of W. H. & L. D. Betz Company is now Professor of Chemical Engineering at the University of Cincinnati, Cincinnati, Ohio.

Rex Bradt, formerly of the University of Chicago is now a process development Consultant at 21 East Van Buren Street, Chicago, Ill.

Requests for room reservations for the meetings of the Technical Association of the Pulp and Paper Industry at Detroit, Mich. (September 26-28) and the Engineering Conference at Milwaukee, Wis. (October 2-4) should be sent to the Association office at 122 East 42nd Street, New York 17, N. Y.

Lloyd D. Smiley, formerly with the Florida Pulp and Paper Company, is now industrial manager of Gahagan Byrne Associates, 90 Broad Street, New York, N. Y.

E. T. A. Coughlin, formerly of the Bryant Paper Company, is now coated paper consultant for Chas. T. Main, Inc., 201 Devonshire St., Boston, Mass.

R. H. Musser has succeeded L. A. Daines (deceased) as official representative of the Heppenstall Company in the Technical Association of the Pulp and Paper Industry.

Production Ratio Report*

(Production as per cent of six-day capacity)

COMPARATIVE WEEKLY SUMMARIES

Current Weeks—1946		Corresponding Weeks—1945	
June 29	105.5	June 30	88.0
July 6	61.1	July 7	47.9
July 13	95.2	July 14	88.5
July 20	102.8	July 21	89.8
July 27	104.7	July 28	93.4
August 3	*105.2*	August 4	93.6

COMPARATIVE MONTHLY SUMMARIES

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	86.7	89.4	90.2	88.1	89.8	91.2	80.8	88.6	90.2	95.9	95.5	91.0	89.7
1946	94.7	98.4	104.4	102.7	100.7	104.6	*94.0*						

COMPARATIVE YEARLY SUMMARIES

	1939	1940	1941	1942	1943	1944	1945	1946
Year to Date	78.6	86.9	93.8	94.8	87.8	87.5	88.1	*99.5*
Year Average	83.4	85.6	97.4	90.4	87.8	88.1	89.7	

PAPERBOARD OPERATING RATIOS†

Current Weeks—1946		Corresponding Weeks—1945	
June 29	98	June 30	96
July 6	70	July 7	62
July 13	87	July 14	90
July 20	94	July 21	96
July 27	95	July 28	95
August 3	*98*	August 4	94

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Year Avg.
1945	91	95	97	97	96	96	86	90	91	97	95	85	93
1946	90	97	100	99	94	97	*89*						

* Based on tonnage reported to American Paper and Pulp Association. Does not include mills reporting to National Paperboard Association, except in isolated cases where both paper and paperboard are produced and separate tonnage figures are not readily available. Does not include mills producing newsprint exclusively.

† Per cents of operation based on "Inch-Hours" reported to the National Paperboard Association.

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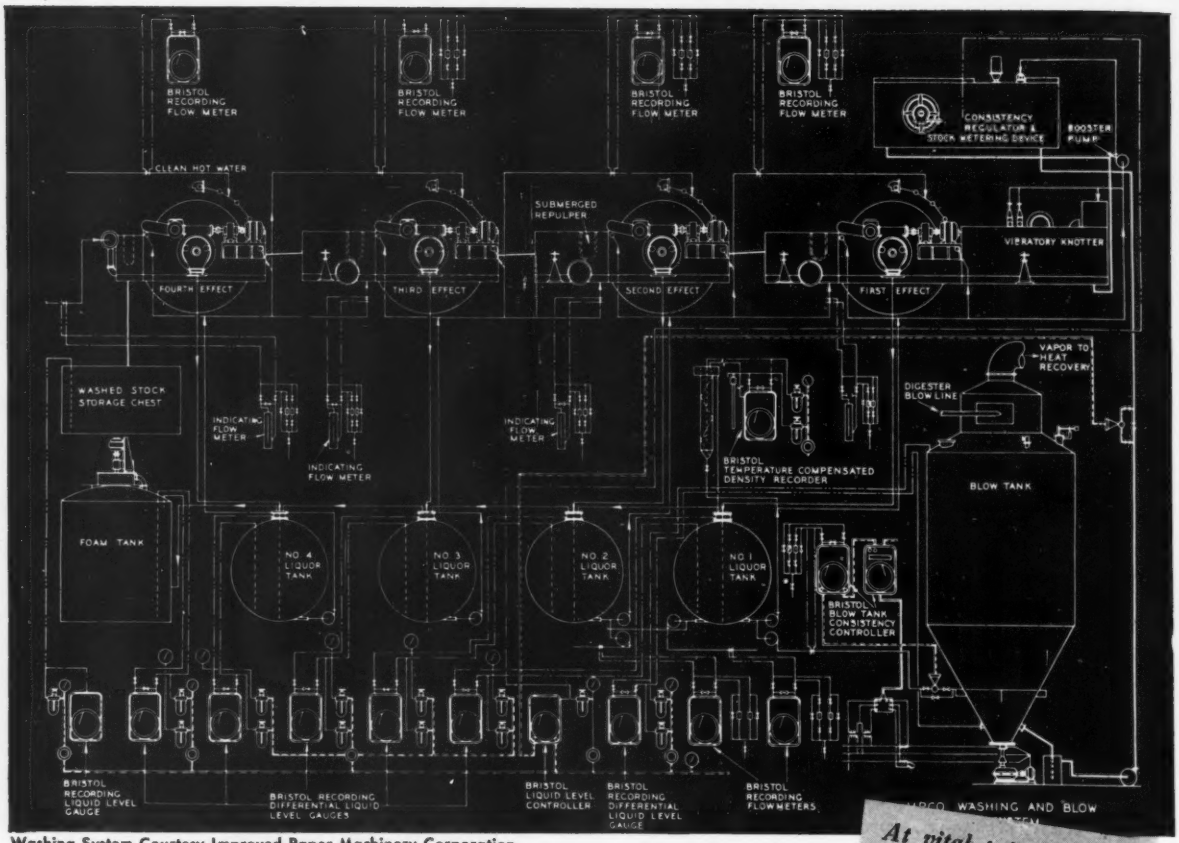

Washing System Courtesy Improved Paper Machinery Corporation

At vital points, Bristol instruments record and control the flow through this modern system of stock washing.

HOW TO GET MAXIMUM RECOVERY OF "BLACK LIQUOR" WHEN WASHING KRAFT

In the processing of Kraft or Brown stock, complete removal of "black liquor" from the pulp fibres is of vital importance.

Thorough washing of the pulp with hot water is required to produce a pulp of acceptable color. Yet the amount of water must be kept to a minimum in order to keep the liquor strength up. The material balance of both liquid and pulp must, therefore, be maintained within close tolerances.

An effective solution to the problem is found in the accompanying diagrammed process. Note that Bristol equipment plays a major part in maintaining the necessary balances throughout this system.

Bristol Flow Meters enable positive regulation of the dilution factor. The saving in evaporation heat pays for their cost many times over. Bristol Liquid Level Gauges tell when the lowering of the level in a tank means that some part of the system is being starved, calling for adjustment. A Bristol Consistency Controller on the blow tank assures proper dilution and dispersion of the fibres, while other Bristol Instruments have important functions.

Here, in a single system, is striking evidence of Bristol's wide-ranging usefulness in modern process control. For further information, write for literature. Address THE BRISTOL COMPANY, 148 Bristol Road, Waterbury 91, Conn. (The Bristol Co. of Canada, Ltd., Toronto, Ont., Bristol's Instrument Company, Ltd., London, N.W. 10, England.) West Coast: Branch Factory — 40 Berry St., San Francisco 7, Calif., Branch Office — White Bldg., Seattle 1, Washington. Lake Region: *Branch Factory and Office* — 351 East Ohio St., Chicago 11, Ill., Southern States: *Branch Office* — Comer Building, Birmingham 3, Alabama.

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Section of the
TECHNICAL ASSOCIATION
OF THE PULP & PAPER INDUSTRY
122 E. 42nd St., New York 17, N. Y.
Edited by R. G. Macdonald, Secretary

TAPPI Survey of Paper Coating Literature for 1945*

By C. G. Landes[1]

This review of the paper coating literature for the year 1945 was undertaken at the request of the TAPPI Paper Coating Committee, and was prepared with the cooperation of all the committee members. The committee intends to issue such a review each year henceforth as a service to paper coaters and converters.

References cited include both periodical articles and patents, but are limited largely to works found in the better known American scientific journals, or listed in *Chemical Abstracts* or the *Industrial Arts Index*.

The term "paper coating" varies in meaning according to the interests of the person who uses it. According to one school of usuage, paper coating has been taken as referring only to the application of printing paper surface coatings generally composed of casein-pigment, starch-pigment, or equivalent aqueous adhesive-pigment dispersions. Other terms applied in a limited way have included "brush coating", "casein coating", "starch coating", and "clay coating", although none of the latter is broad enough for general usage.

A recent addition to the vocabulary is the term "machine coating" which is generally used when referring to the application of adhesive-pigment dispersions by some device that is part of a paper machine, as contrasted to coating a web of paper by means of separate converting equipment.

During recent years, paper converters have given increased attention to the coating and laminating of papers by the use of such diverse materials as lacquers, emulsions, resins, gums, and many others. As an instance of one of these, the term "hot melt" coating has come into fairly common usage, with reference to the coating or laminating of paper with thermoplastic materials such as waxes, natural and synthetic resins, etc. The term "functional papers" has been applied to various papers used for protective and other special industrial uses. These special properties are often obtained by coating.

The two types of coating discussed above might be distinguished arbitrarily, although not quite accurately, according to the use of the coated paper, as follows:

1. Printing Papers—
Application of pigment-adhesive coatings to the surface of paper to improve printability and other related properties. Included in this classification would be such coated grades as magazine and book paper, boxboard, wallpaper, tags, labels, cigarette wrappers, box-covers, and others.

2. Protective and Decorative Papers—
Application of lacquers, varnishes, and hot melt compounds composed of such materials as resins, plasticizers, waxes, and pigments, for various types of coatings and laminants to provide protective properties and decorative effects or both. The prime objective is frequently of affording a protective barrier to prevent the penetratiion of various liquids and gases. In most instances, the coatings will not be printed upon, although transparent protective and decorative coatings are commonly applied to printed base sheets.

The above terminology certainly is open to criticism, and may be revised from time to time as new terms are evolved from common usage in the industry. At present, both types of coating have been included within the scope of interest of the TAPPI Paper Coating Committee, and therefore are covered in the present review.

Printing Paper Coatings

The literature relating to raw materials for coated printing papers reflects the wartime scramble for new and substituted materials, and at the same time gives a glimpse of future trends toward improved products.

Raw Stock

Clarke and others *(1)* discuss the relationship of raw stock properties, as governed by paper machine operation and control, with coating machine operation and finished sheet quality. Specific suggestions are made with respect to control of sizing and air permeability. Bearse and Barclay *(2)* list coating body stock quality requirements in a general way.

In articles by Kumler *(3)* and others *(1, 4)*, interesting suggestions are made concerning potential advantages of the use of small amounts of melamine or urea resins in coating raw stock. Mention is made of such possibilities as reduced wet stretch and curl tendency, and improved strength, sizing, and wet rub resistance.

Pigments

Interesting data showing effects of coating clays of varying particle size, source and brightness on un-

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

[1] Member TAPPI; Member of TAPPI Coating Committee; Stamford Research Laboratories, American Cyanamid Co., Stamford, Conn.

calendered coated sheet brightness are presented by Albert and Callighan *(5)*. Varying coat weights were applied to raw stocks of a wide range of brightness values, using typical casein, starch, and casein-soya protein formulations. In the lower coat weight ranges, the brightness of the clay is not so important as its covering power in determining sheet brightness. Covering power is indicated as depending primarily upon particle size. At comparable coat weights the casein coatings generally were brighter than the starch coatings. It would be of interest to extend this work to include wax pick test data, and to show the effect of supercalendering on the results obtained.

The increasing use of calcium carbonate and related pigments has been quite evident during recent years. Roderick *(6)* lists the requirements of a good coating pigment, and describes methods of preparing precipitated carbonate suitable for paper coating. The importance of reducing the adhesive requirements of precipitated calcium carbonates is stressed, and two methods of accomplishing this objective are described in detail. Two patents issued to Rafton *(7, 7a)* describe other procedures for reducing the adhesive demand of carbonate pigments. It might be noted that most of the procedures described above involve special mechanical treatments of the pigment slurries. Several other patents relating to mechanical treatments of pigments to reduce adhesive demand have been issued within the past few years.

Haywood and Welton *(8)* have patented a method of producing an improved calcium sulphite pigment claimed to be suitable for paper coating. Wise *(9)* has patented a method for testing the suitability of a pigment for use in a water paint composition containing urea-formaldehyde. This procedure would appear to be of interest in connection with the wider use of urea resins in starch-pigment coatings.

Adhesives

A very good summary of the present trends and commercial practices with reference to pigment adhesives is given by Milham *(10)*. Requirements of a good adhesive are listed, and methods of use, and advantages or disadvantages of various specific adhesives are described. Considerable detail is given concerning casein and starch, and mention is made of the less important materials such as soya flour and proteins, glues and albumins, polyvinyl alcohol, and resins. The statement that most mills now use caustic soda for cutting casein is open to question.

Two excellent articles emphasize the rapid development of improved starches and resin-modified starch formulations for paper coating. Kerr and Schink *(11)* discuss recent data and theories covering the relationship of the nature and properties of starches to their use in paper coatings. While oxidized starches formerly were considered necessary, the recent use of pyrophosphates and metaphosphates for dispersing clays makes it possible to use other types of converted starches such as pyrodextrins. Procedures have been developed for making pyrodextrins which are suitable for either low or high solids coatings colors, and which compare satisfactorily with oxidized and enzyme converted starches. Typical formulas and color mixing procedures are described. Interesting methods of relating the viscosity properties of a coating color to its suitability for a particular type of coating application are presented.

Kesler and Hjemstad *(12)* describe a new starch-urea resin product made by reacting corn starch with urea-formaldehyde under acid conditions. This material has been used as a binder for clay coatings and provides increased water (wet rub) resistance. Novel methods have been developed for evaluating the water resistance of starch coating colors, and the shrinkage of starch films. The shrinkage of starch coatings is believed to play an important part in determining the pigment bonding strength.

Gardner *(13)* has patented an improved starch for paper coating; the starch is reacted with a monohydric alcohol at elevated temperatures under acid conditions. A patent issued to Kerr *(14)* describes treatment of starch with a diastatic enzyme under specified conditions such that only a small portion of the starch is solublized. The insoluble portion is separated and utilized for paper coating by subsequent conversion by a standard procedure. Craig *(15)* has patented a method of preparing starch coating colors involving enzyme conversion of the starch in the presence of the coating pigments.

Although no outstanding developments in the field of protein adhesives have been reported, there has been considerable activity particularly with regard to use of proteins other than casein. Protein extraction processes have been patented by Boyer *(16)* for soya protein and by Monte *(17)* for corn protein. The use of zein (corn protein) for paper coatings is described in a patent issued to Stewart *(18)*. The protein is dispersed by means of such materials as rosin size or various sulphonated oils.

Methods for waterproofing or hardening proteins are described in patents issued to Brother *(19)*, Ware *(20)*, and Bennett *(21)*. The latter patent describes the addition of two different aldehydes to the coating composition under controlled conditions, and it is stated that improved water, varnish and ink resistance are obtained.

A method of plasticizing proteins by the use of formamide and a substance such as glycerine or triethanolamine has been patented by Dangelmajer *(22)*. A patent issued to Smith and others *(23)* describes protein products bleached with dithionite salts to provide paper coatings of improved color. Burnett and coworkers *(24)* have studied the viscosity characteristics of peanut protein solutions, and present viscosity-pH comparisons of casein with soya and peanut proteins.

Sweatt *(25)* gives a comprehensive review of the use of animal glue as a paper coating adhesive. Methods of evaluating glues are described and waterproofing techniques indicated. Glue has continued to hold acceptance for use in coated specialties such as playing card stock, glazed papers, wallpapers, and metal coated papers. It is not made clear in the article, however, that casein and starch are used much more widely than glue for paper coating in general.

The only new adhesive reported is carboxymethylcellulose. Hollabaugh *(26)* mentions that this material is useful for greaseproof coatings and as a substitute for casein as a clay binder, but no specific data are presented.

Defoamers

McGinn *(27)* describes the general nature and application of defoamers for casein, glue and starch coatings. Metallic soap dispersions are mentioned; they should be added to the adhesive rather than to the finished coating color.

Equipment and Processing

A comprehensive article by Egan *(28)* provides an

up to date description of the basic application methods used in paper coating. Variations, advantages and limitations of each are mentioned. Paper machine coating is discussed, stressing the differences in coating color formulation required. Letterpress and offset gravure methods of print coating are stated to be particularly adaptable to paper machine application.

Specific equipment involving roll or print coating methods applicable for machine coating are described in patents issued to Thiele and Beadle *(29)*, Van de Carr *(30)* and Paxton and Vail *(31)*. Woodward *(32)* patented an improved air jet doctor for smoothing coatings on paper. The John Waldron Corporation *(33)* announced a specially designed rotogravure offset printer for machine coating.

Major *(34)* discusses the theory and practice of drying coated paper, with emphasis on methods used in Europe. Thompson *(35)* gives practical suggestions for the installation and care of supercalender rolls, with comments on recent coating developments and their effect on supercalendering practice.

Fisher *(36)* has patented a method of coloring coated paperboard, based on pretreatment of the web by a water dispersible coloring and sizing material, followed by immediate application of the usual type of pigment-adhesive coating.

Paper Quality and Testing

A general description of printing processes is given by Simmons *(37)*; the effect of paper quality on printing results is discussed and printing quality tests described. Frost *(38)* discusses the importance of ink setting time in relation to offset troubles during the printing of coated book paper.

Reed *(39)* states that the pH of a paper coating is an important factor in the drying of lithographic ink; increasing pH causes faster drying. Vallandigham *(40)* discusses available procedures for evaluating the ink absorbency of paper. An improved method of evaluating ink absorbency is presented, based upon application of a mineral oil-titanium dioxide dispersion to the paper under controlled conditions, and photoelectric measurement of the gloss of the inked area at increasing time intervals.

Buchdahl and Polglase *(41)* present an interesting article in which variations in ink coverage are related to print quality. Two new methods are described for determining the amount of ink deposited on a given area of paper. One is based on colorimetric determination of a dyestuff added to the ink before printing and subsequently extracted with solvent. The other involves addition of a radioactive tracer to the ink and determination of the amount of tracer in the printed ink film. Typical data are presented covering evaluation of a series of machine coated papers.

Industry Trends

From literature reviewed so far it is evident that development of improved raw materials is being studied intensively. The trend toward increased usage of starch adhesives continues, accelerated by demands of the machine coating mills. The shortage of both casein and starch has stimulated the use of other protein adhesives, and improvements of their coating properties. Pigment development is progressing at a steady pace, with most of the emphasis on low cost pigments such as clays and carbonates.

Developments in standard coating equipment have been limited, perhaps due in part to war conditions. More attention has been devoted to machine coating equipment and processes. In fact, the interest in machine coating has been so intense that many of the new developments in the paper coating industry as a whole, during the past few years, have resulted either directly or indirectly from competitive efforts to develop improved materials, formulations and equipment for machine coating. This process will be discussed in more detail in the next section.

An article on prospects for fancy box papers *(42)* outlines postwar trends in this specialized field, particularly with regard to the need for development of new printed and embossed designs.

Machine Coating

A summary of the development of machine coating is presented in an excellent article by Massey *(43)*, one of the pioneers in the field. The demands of printers for a low cost coated sheet suitable for half-tone reproduction, and the requirements for printing with heat set inks, are mentioned as the prime causes of the immediate acceptance of machine coated paper. A tremendous increase in machine coating capacity is visualized, not only in the field of printing papers, but also in other grades such as paper and board for packaging. The importance of raw materials for the coating colors is stressed, and credit given to clay and other raw material producers for supplying products necessary to successful development of the process. Raw stock quality is important, and the use of groundwood base stock provides exceptionally good printing results. Although the future of machine coating is pictured as being exceedingly bright, the industry is cautioned not to consider the process as a cure-all. A few debatable statements are made, such as one referring to the electron microscope—"Without this instrument, processes for classifying clays into various micron size groupings and evaluation of printed surfaces would not have been possible."

Case *(44)* presents a good picture of the reasons for expanding use of machine coated papers in catalogs, and outlines further developments desired. There is need for a machine coated paper for high grade four-color rotogravure printing, the most important properties desired being improved ink receptivity and better resilience of the coating. Another desirable improvement would be to provide a paper of better heat resistance, for use with heat set inks. At present, the intense heat used to set the inks makes the paper too brittle for folding and binding operations.

Many of the references already cited in this review have dealt with some phase of machine coating or materials related thereto. Strictly from the commercial viewpoint, the most important development in machine coating has been the announcement of new installations planned for mills all over the country. For example, in a recent article *(45) entitled* "Grab your hat! The race is on for magazine paper", mention is made of over a dozen coating machine installations being planned, most of them machine coating by major book paper manufacturers. Attention also is called to the fact that several paper mills have been purchased by large magazine publishing houses.

No accurate or comprehensive survey of proposed paper coating expansion has yet been published, but it is understood that perhaps twenty to thirty new machine coating installations will be made during the next two to three years in the book paper field alone. Expansion also is taking place in the board industry and it is known that at least five to ten board mills will install machine coating equipment as soon as it is available.

This rapid increase in machine coating capacity

will have important and diverse effects on the whole paper industry. New competitive situations will arise as paper users choose their requirements from the various types and grades available. Raw materials producers will be under pressure to develop new and improved products to meet the demands of coated paper manufacturers. The machine coating processes also will be the subject of intensive study by engineers and chemists both in the paper and allied industries. At the present time there are several distinct mechanical procedures used commercially for applying coating colors at the paper machine. Competition between these processes will contribute to cost reductions and quality improvements throughout the industry.

Protective and Decorative Coatings

Much of the general literature in the protective coatings field has dealt with wartime packaging problems, with some attention being given to future trends and possibilities. Rogers *(46)* describes recent developments in the coating and dip sealing of frozen foods and other war supplies. Test procedures and future prospects for thermoplastic coatings and adhesives are discussed. Cleaveland *(47)* reviews the recent developments in plastic coatings for paper and textiles. Gloor *(48)* notes the development of protective coatings in Germany, including the use of nitrocellulose lacquers for paper coating. Darling *(49)* and Shankweller *(50)* present general discussions dealing with various types of resin coatings for paper.

Welp *(51)* discusses packaging trends of the future, with reference to the wartime uses of hot melts. Increased use of color is predicted, such as for corrugated containers. Mosher *(52)* reviews methods of applying resins to paper, and Speyer *(53)* presents a general picture of the properties and requirements of coating and laminating materials.

Mattiello *(54, 55)* covers in considerable detail the developments during recent years with regard to protective coating materials, with prime emphasis on the paint and lacquer field. All common types of resins are discussed, and some details on materials for paper coating, such as the vinyl resins, are presented.

Raw Materials

A good summary of the manufacture, nature and application of microcrystalline waxes in the paper industry is presented by Dean *(56)*. Other materials receiving increasing attention for paper coating and in packaging are covered in articles on polyvinyl alcohol and acetates by Criss *(57)*, on rubber derivatives by Clunan *(58)* and on polythene by Hahn and others *(59)*. Nichols and others *(60)* describe a new material, the allyl ether of starch, that may find application as a coating or laminating material. Touchin *(61)* discusses the blending of natural and synthetic resins for use in paints.

Recent patents on coating raw materials include one issued to Murray *(62)* covering a process of acetylating starch to provide thermoplastic products suitable for hot melt application to paper. Ott *(63)* describes a new terpene-isobutene copolymer which can be applied as an emulsion or solvent solution to produce flexible coatings on paper. Lieber *(64)* discloses a new compound used as a modifier for waxy coating compounds. Hochwalt *(65)* describes the preparation of greaseproof and water repellent paper by application of complex amides.

Coating Compositions

Many new coating compositions applicable to paper have been disclosed in recently issued patents. Most of these were designed with specific use properties in mind, and presumably their suitability for commercial use will not become apparent until sufficient time has elapsed for evaluation under peace time conditions.

Several *wax* compositions have been patented. Sanford *(66)* describes a wax-pentaerythritol ester blend, to which ethyl cellulose can be added. Pearsall *(67)* blends ester gum with hydrogenated castor oil; rosin or wax can be added. Pearsall *(68)* improves the color of wax-ester gum compositions by treatment with sulphur. Peterson and MacLaren *(69)* stabilize paraffin wax compositions to prevent oxidation. Luckenbach *(70)* describes the use of lithium soaps to obtain high melting wax compositions for paper coating. A high melting synthetic wax or wax modifier of the hydroxy-amide type is described by Bradley *(71)*. Most of the above compositions are of the hot melt type, and are claimed to be useful as waterproof coatings for paper and paper containers.

Rubber and rubberlike materials form the basis of several patented compositions recommended for flexible, heat-sealable, and sometimes vapor or water resistant coatings. Latham *(72)* describes mixtures of polyethylene with materials such as polyisobutylene or chlorinated rubber. Mack *(73)* describes an emulsion of polyisobutylene plus a terpene or coumarone-indene resin. Raynolds *(74)* covers a mixture of chlorinated rubber with polyvinyl acetate, and chlorinated paraffin or an alkyd resin. Manchester *(75)* produces a moisture vapor resistant film by use of a benzene solution of rubber hydrochloride (Pliofilm) and a copolymer of vinyl and vinylidene chlorides (Saran).

Cellulose derivatives form the basis of several interesting compositions. Salo and Vivian *(76, 77)* disclose non-blocking hot melt coatings comprised of cellulose acetate butyrate and antioxydants such as butyl stearate plus another ester. Huppert *(78)* emulsifies cellulose acetate with isophorone and a protective colloid to produce a water resistant coating material. Hemming *(140)* describes an ethyl cellulose-resin composition for cable coatings.

Rosin derivatives or compositions are mentioned in patents by Little *(79)*, who describes a lacquer based on hydrogenated rosin esters and a polyalkylene glycol-ethyl cellulose compound, and by Rice *(80)*, who discloses a reaction product of rosin, tall oil and lime, soluble in organic solvents.

Special *emulsions* form the basis of several interesting patents. Little *(81)* describes an emulsion of chlorinated rubber and a glycol ester of a rosin acid. Neher and Conn *(82)* disclose a viscous acrylate emulsion suitable for coating. Trist *(83, 84)* produces a water-in-oil emulsion of bodied linseed oil suitable for printing or coating of paper. Dyes, pigments and other materials may be incorporated. Auer *(85)* discloses an oil-in-water emulsion of bodied linseed oil useful as a water resistant coating material.

Several patents on *vinyl resin* compositions have appeared. Seitz *(86)* describes a method of applying two stage coatings of benzene solutions of vinyl chloride-vinylidene chloride copolymers. Doolittle *(87)* applies vinyl resin coatings to paper, and Ouarles and Doolittle *(88)*, and Powell and McKnight *(89)* apply vinyl resin-wax blends. Special after-bake treatments are specified in the last three patents mentioned.

Protein, *starch*, and *silicate* coating compositions have been patented, with application to paper as a

grease or oil resistant coating being a general objective. DeVine *(90)* heats zein with furfural, and dissolves the material in solvents with added nitrocellulose and plasticizers. James *(91)* disperses zein in water with the aid of soaps or sulfonated oils. Pigments, plasticizers and other modifiers can be added. Bauer *(92)* discloses a composition of dextrinized starch, urea and a solid aliphatic acid such as citric. Little *(93)* describes a zinc caseinate-rosin ester adhesive composition. Vana *(94)* improves the flexibility of silicate adhesives by the addition of a coumarone-indene resin dissolved in dibutyl phthalate. Complex grease-proofing compositions based on glue are described by Hatch and Rollins *(95)*; Witty *(96)* discloses a milk albumin-starch formulation.

Fisher and Thompson *(97)* obtain a water and grease resistant paper by first applying a light film of wax emulsion at the tub or calender, followed by a coating of polyvinyl alcohol. Schur *(98)* prevents undesirable penetration of resinous or waxy coatings by application of a priming coat of a starch-bentonite dispersion.

Application Equipment

Two excellent articles by Egan *(99, 100)* summarize methods for treating or coating paper with resins, waxes and other materials, and for combining and laminating paper.

Murch and others *(101)* have patented an intaglio roll type of applicator for thermoplastic materials. Herrick *(102)* discloses a method of applying wax coatings wherein the wax coated paper is passed through a bath of molten metal to smooth the coating. Ettl *(103)* describes a machine for coating sheets of paper with lacquers. Other coating machines have been patented by Palmer *(104)* for waxing, Wickwire *(105)* who utilizes a flame to smooth the thermoplastic coating, Hyman *(106)* who applies successive lavers of coating by intaglio rolls. This latter procedure is claimed to be effective on rough base papers.

Specialty coating devices are disclosed in several patents. Stoll *(107)* applies vaporized metal coatings under vacuum. Melton *(108)* utilizes a gas jet to apply an adhesive coating to abrasive paper. A machine designed for the icing of cakes has been developed by Lang *(109)*, who states that it can be used for application of lacquers. Devices for coating containers have been disclosed by Kronquest *(110)* and Murch *(111)*.

Packaging

War problems have stimulated great interest in the packaging of foods in paper and paperboard containers. Many excellent articles with reference to food packaging are available, and it is apparent that the requirements are complex and highly variable, depending upon the type of food in question, conditions under which the container will be handled and many other factors.

Several articles describe the foil-paper packages used by the armed forces for Ration K, and desired improvements in dip coating of food packages in general *(112, 113)*. Dehydrated meat and frozen fish packaging problems and practices have been covered in considerable detail *(114, 115)*. Crocker *(116)* discusses flavor retention problems and tests, and Hucker *(117)* surveys food packaging in general, with suggestions as to development of paper containers to compete with other materials. Isherwood and Macara *(118)* outline the development and practical testing of a gelatin-glycerine coating for paper packages to prevent oxygen penetration. Vacuum and gas packing of foods are described by Woodcook *(119)* and Neuman *(120)*.

The uses of glassine and greaseproof paper for packaging are reported in considerable detail by Hoffman and Penn *(121)*. Resin and wax coating and laminating materials that have been applied to glassine are reviewed, and finished sheet properties described. Greenwood *(122)* describes the procedures used in making oil and grease resistant containers. Problems involved in preventing insect penetration of paper packages are described thoroughly by Essig *(123)*. Latest developments in this field are presented. Rhodes *(124)* summarizes the principles involved in preventing corrosion of metal parts.

Several patents have been issued covering thermoplastic resin or wax coated wrapping papers: Bryce *(125)*, Johnson *(126)*, Rhodes and Wendorf *(127)*.

Test Procedures

Literature on packaging paper or container tests has dealt primarily with permeability of water vapor and other gases. Aiken, Doty, and Mark *(128)* present a fundamental analysis of factors affecting water vapor transmission. Methods and apparatus for testing permeability of water vapor, oxygen or carbon dioxide are described by Edwards and Strohm *(129)*, Cornwell *(130)*, Oswin *(131)*, Kleiber and Smith *(132)*, Rabak and Stark *(133)*, and Schwab, Falkenburg, and Cowan *(134)*.

Specialties

Several types of coated papers useful for special industrial purposes have been patented: manifold paper by Green *(135)*, metallized condenser paper by Sträb *(136)*, photographic paper by Galley *(137)*, photographic mounting tissue by Abrams and Forcey *(138)*, and paper separable from adhesives by Maxwell and Thomas *(139)*.

Heat sealable coating compositions are described by Kallander *(141)* and fireproofing compositions are the subject of patents issued to Leatherman *(142)*.

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Clarification of Green Liquor*

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Abstract

It has been found possible to clarify green liquor by the precipitation of magnesium hydroxide with resultant removal of essentially all iron compounds prior to the causticizing operations.

Chemical recovery is an integral part of the kraft or sulphate process of pulp manufacturing and it is essential to recover for reuse the sodium salts present in the black liquor discharged with the pulp from the digesters. It is standard practice to evaporate the black liquor, burn the carbonaceous residue in the presence of salt cake, after which the resultant ash is dissolved and diluted, clarified, recausticized, and made up into fresh cooking liquor.

After the carbonaceous material has been burned in a recovery furnace, the molten chemicals are dissolved, usually by means of weak green or white liquor; thereby making up the raw or green liquor. This green liquor contains sodium carbonate, sodium sulphide, sodium sulphate, sodium thiosulphate, and polysulphides together with the impurities in the salt cake previously added to the black ash to make up the chemicals lost in the pulp production.

The green liquor also contains impurities consisting of sodium ferro sulphide, ferrous sulphide with traces of sodium ferro cyanide *(1)*, these iron compounds being present in solution and in a colloidal form, as well as in suspension. The iron compounds impart a green color to the liquor which gives it its name. Also present are insoluble silica from the salt cake, finely divided carbon from the incompletely burned black ash, and partially soluble silicates and aluminates introduced with the salt cake and through the reaction of the alkalis with the refractory lining of the smelting furnace. These impurities amount to approximately 0.5% of the weight of the green liquor *(2)*. The analysis in Table I indicates the composition of various green liquors *(3)*.

TABLE I

Chemical	Grams per Liter	Grams per Liter	Grams per Liter
Sodium carbonate	145.2	130.3	158.0
Sodium sulphide	39.0	42.1	27.3
Sodium hydroxide	15.6	23.2	24.4
Sodium silicate	2.8	1.6	2.0
Sodium sulphate	2.5	24.4	2.1
Sodium sulphite	4.4	3.8	1.4
Total active alkali (as Na_2O)	128.1	127.8	133.1
Grand total alkali (as Na_2O)	132.8	135.2	135.7

Approximately 300 pound of salt cake are added per ton of pulp *(4)*, the salt cake containing 0.42 to 0.58% of iron and aluminum oxides thereby introducing between 1 and 2 pounds of iron and alumina per ton of pulp from the salt cake alone. In addition, iron is introduced due to corrosion in the digesters and evaporators *(5)*; and aluminum and siliceous impurities are added from the furnace linings and fresh lime causing a continuous increase in the amount of impurities in the chemical system. It has been proven very beneficial, if not essential, to reduce iron, silica, and alumina before causticising in order to: (1) produce a calcium carbonate sludge suitable for reburning, (2) to effect rapid settling in the causticizing stage.

The Bates patent covers a system for clarifying green liquor by sedimentation alone. In an effort to remove these impurities, sedimentation of green liquor for a period of from 2 to 4 hours is employed prior to causticizing. But, as in the case of water treatment, sedimentation alone does not suffice to remove colloidal impurities, and as a result the clarified liquor invariably is turbid and green in color because of colloidal iron compounds remaining in the clarified liquor. Centrifuging and filtration have been tried for clarification, but the most practical system employed to date has been a combination settler and washer of the tray type wherein the dregs are washed in multiple compartments *(6)*.

In spite of the limitations of plain sedimentation, green liquor clarification has proven to be beneficial because the partial removal of iron salts and organic slimes aids the settling of the causticized sludge and materially improves the quality of the lime recovered. Moreover, the sludge formed when the clarified green liquor is causticized settles faster, and is more readily washed and filtered; and a clearer white—or cooking — liquor is produced than when unclarified green liquor is employed. It is generally conceded that the presence of iron salts materially affects the settling rate of the causticized liquor. Plain sedimentation alone has the distinct disadvantage of being uncontrollable. The amount of iron removed is purely a function of the settling characteristics of the iron and other suspended particles and the velocity of the liquid. The operators have very little control over these factors which is a serious handicap in the later steps.

Clarification of green liquor produces about a 6% sludge of a slimy character, which is difficult to wash and difficult to filter. In some instances in order to effect a more complete iron removal, partial lime treatment in the green liquor settling stage has been employed. But this is objectionable because it results in a loss of lime; thereby reducing the efficiency of the reburning operation.

Hughey, Herndon, and Withrow *(7)* have found that the availability of reburned lime decreases about 10% after two reburnings after which a constant availability was obtained for about five cycles. The following tabulation indicates the lime composition after five cycles.

The large increase in the per cent of impurities in the reburned lime is largely a result of the concentration of impurities from the green liquor which are not removed by the usual clarification of the green liquor.

Laboratory Investigation of Coagulants

In view of the desirability of improved green liquor clarification, the use of coagulants has been investigated. Initial investigation was made on samples of green liquor from Brunswick Pulp and Paper Company, Brunswick, Georgia; these tests being made in

TABLE II

	New Lime	Lime After Five Cycles
Ignition loss, %	0.8	0.5
Silica and Insolubles, %	1.2	5.4
Al_2O_3 plus Fe_2O_3, %	0.4	0.9
CaO, %	96.1	91.0
MgO, %	0.9	1.3
Available lime, %	90.2	79.4

* Presented at the Annual Meeting of the Technical Association of the Pulp & Paper Industry, Hotel Commodore, New York, N. Y., Feb. 25-28, 1946.

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the Chicago laboratories. The liquor contained 90 milligrams of iron per liter, and had 1,064 milligrams of suspended solids per liter, the latter having been determined gravimetrically with the residue being dried at 103°C.

In view of the high alkali and pH of the green liquor, the selection of coagulants was somewhat limited. As aluminum coagulants would be too soluble in the green liquor, it was decided to investigate ferric chloride and activated silica, hydrated lime, and magnesium salts. Tests were made with liquor heated to 108°F., the sample having been stirred at 50 r.p.m. for 10 minutes to permit flocculation, after which a 2 hour settling time was allowed.

The addition of hydrated lime produced a fine calcium carbonate precipitate which did not materially improve the settling characteristics of the liquor. Ferric chloride and activated silica and the magnesium salts produced good floc particles which settled essentially completely in the 2 hour period allowed. However, in view of the possible objections to the use of an iron coagulant for paper mill processing, and in view of the possibility of increasing the silica concentration because of the solubility of activated silica in the alkaline liquor, the use of magnesium salts as a means of coagulation presented attractive possibilities.

Initial laboratory tests were made with a sample which had aged about 7 days in shipment. When additional tests were made a few days later, it was found that excellent coagulation was obtained by heat alone, indicating a marked change in the colloidal characteristics of the liquor. However, it was felt that the initial tests had been indicative of the relative coagulating properties of the chemicals employed and consequently arrangements were made to run field tests with fresh green liquor.

Mill Trials

Tests were made at the National Container Corporation, Jacksonville, Florida; and confirmed the laboratory findings on the coagulating properties of the magnesium compounds. It was noted that magnesium sulphate, chloride, carbonate or dolomitic lime could be used, the sulphate and chloride proving to be most effective. As indicated in Table III, excellent results were obtained with the addition of 1000 to 1500 p.p.m. of Epsom salts. Within a 2-hour settling time, the supernatent liquor was colorless, and had a turbidity of approximately 5 to 10 p.p.m. By way of contrast, the raw green liquor was allowed to settle for an equal period of time, and it had a turbidity of approximately 1000 p.p.m. after settling. The coagulated sample had a sludge volume of approximately 15% as contrasted with only 7% in the untreated green liquor. The magnesium hydroxide sludge washed readily with hot water, the floc particles reforming and settling completely, but the sludge resulting from settling alone was dispersed by the water and did not settle effectively.

These tests showed such promise that provisions were made to run tests in the mill to determine the effect of full scale operations. With a mill producing 290 tons of pulp per day, it necessitated the use of 400 pounds of Epsom salt per day corresponding to a dosage of 220 p.p.m. to produce good floc formation. Analysis indicated that the R_2O_3 content of the green liquor was reduced from an average of 500 to 265 p.p.m. with the iron content (as Fe) being reduced from 90 to 2 p.p.m. This amounted to a daily removal of 526 pounds of iron and aluminum oxide, or 1.8 pounds per ton of pulp.

TABLE III

Test	Chemical Added	Quantity (mg. per liter)	Floc Formation	Settling Characteristics
1	$MgSO_4 7H_2O$	300	poor	poor
2	$MgSO_4 7H_2O$	500	poor	poor
3	$MgSO_4 7H_2O$	800	poor	poor
4	$MgSO_4 7H_2O$	1000	fair	good $_1$
5	$MgSO_4 7H_2O$	1500	good	good $_2$
6	$MgSO_4 7H_2O$	2000	good	good $_3$
7	$MgSO_4 7H_2O$	2500	good	good $_4$
8	$MgCl_2 6H_2O$	600	poor	poor
9	$MgCl_2 6H_2O$	800	fair	poor
10	$MgCl_2 6H_2O$	1000	fair	good
11	$MgCl_2 6H_2O$	1500	good	good
12	$MgCl_2 6H_2O$	2000	good	good
13	MgO	500	poor	poor
14	MgO	1000	poor	poor
15	MgO	150	poor	poor
16	MgO	200	poor	poor
17	MgO	250	poor	poor
18	MgO CaO	100	poor	poor
19	MgO CaO	150	poor	poor
20	MgO CaO	200	poor	poor
21	MgO CaO	250	fair	fair
22	MgO CaO	350	good	fair

Subscript 1—Turbidity 50 p.p.m.
Subscript 2—Turbidity 20 p.p.m.
Subscript 3—Turbidity 5 p.p.m.
Subscript 4—Turbidity 5 p.p.m.

Besides producing a virtually clear, and less colored liquor, the coagulation resulted in marked improvements in the causticizing operations. It was evident that the removal of iron compounds increased the density of the calcium carbonate sludge thereby increasing its settling rate and also improving the clarity of the white liquor. The line of demarkation between sludge and white liquor was 10 inches below the overflow weir before the addition of the Epsom salts and 39 inches after the addition of Epsom salts to the green liquor.

Assuming that 100 cubic feet of white liquor are required per ton of pulp *(8)*, approximately 1.5 pound of Epsom salts are needed per ton of pulp for effective clarification. Hence for a low chemical cost, the removal of approximately 1.8 pounds of impurities per ton of pulp can be obtained in the green liquor.

A second trial run was made at the National Container Corp. for 5 days, composite samples of the green and white liquor being saved for comparison with samples taken when Epsom salts were not used as a coagulant. Although the results were less conclusive than in the previous test because of wide variations in the liquor being used, tests over a longer period are contemplated to obtain more conclusive data.

It appears that magnesium sulphate or chloride can be used to advantage as a coagulant in any mill which has equipment for clarifying green liquor provided that suitable chemical feeding and flocculating equipment are available. In view of the improved settling and washing characteristics of the green liquor dregs; the more rapid settling of sludge produced in the causticizing operation; and the improved clarity of the white liquor, it is anticipated that existing equipment can be operated at higher capacities, and with the added benefits of better causticizing operations and more efficient lime recovery.

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To facilitate reference to the individual numbers of the PAPER TRADE JOURNAL, the following table of the pagination of the *Technical Section* appearing in each of the 26 numbers of Volume 122 (January to June, 1945, 1946) is given.

No. 1	Jan. 3	1- 10	No. 14	Apr. 4	143-154
No. 2	Jan. 10	11- 20	No. 15	Apr. 11	155-164
No. 3	Jan. 17	21- 30	No. 16	Apr. 18	165-176
No. 4	Jan. 24	31- 40	No. 17	Apr. 25	177-188
No. 5	Jan. 31	41- 47	No. 18	May 2	189-200
No. 6	Feb. 7	51- 62	No. 19	May 9	201-210
No. 7	Feb. 14	63- 74	No. 20	May 16	211-222
No. 8	Feb. 21	75- 86	No. 21	May 23	223-234
No. 9	Feb. 28		No. 22	May 30	235-246
No. 10	Mar. 7	99-110	No. 23	June 6	247-258
No. 11	Mar. 14	111-120	No. 24	June 13	259-270
No. 12	Mar. 21	121-132	No. 25	June 20	271-282
No. 13	Mar. 28	133-142	No. 26	June 27	283-292

A

ACHORN, D. T. Lubrication of anti friction bearings 280
Activated silica, water purification with 158
ADAMS, DANIEL O. Studies of dielectric properties of chemical pulps. II. Study of certain factors influencing the dielectric strength of paper..... 63
Adhesives
- Bitumens 256
- Buna styrene 253
- Casein 254
- Chlorinated rubber 257
- Dextrins 254
- Glue 255
- Hot melt 256
- Isobutylene resins 256
- Laminating 252
- Polyamide resins 257
- Polyvinyl acetate 253
- Polyvinyl alcohol 254
- Silicones 255
- Sodium silicate 255
- Soybean flour 254
- Starch 253
- Urea-formaldehyde resins 257
- Vegetable gums 253
- Waxes 256
- Zein 254

Agricultural residues, utilization..... 198
ANDERSON, L. O. See Rietz, R. C.
APPLEBAUM, S. B. Reclaimer treatment of white and waste waters 249
Aspen, analysis 14
Asphalt emulsions, alkali lignin in 139
Asphalted paper, bleeding resistance ... 263

B

Bacteria
- Mechanical pulp, content of 42
- Mechanical pulp, effect on 41
- Sodium peroxide stability, effect on 42

BAILEY, H. P., and NADELMAN, A. H. Washing of deinked stock—results of sodium hexametaphosphate treatment 141
Barking, problems of 260
Baylis activated silica 159
Bearings
- Antifriction, lubrication of 280
- Ball, lubrication of 280
- Roller, lubrication of 280

Beater
- Function of 278
- Washing efficiency for deinked stock 283
- White water in 156

Beating
- Hemicelluloses, effect of 33
- Theory of 33

Benzyl mercaptan lignin 230
Beta-cellulose, determination 61
BIDDLE, ARTHUR. Laminating adhesives and their applications 252
Bis(alpha-phenylethyl)phenol, penetration of paper 267
Bitumens, laminating adhesive..... 256
Black liquor
- Sodium sulphide, determination of 99
- Stability 101

Black spruce, analysis 14
Bleach liquor, measurement and distribution 153
Bleaching
- Mechanical pulp
  - Hydrogen peroxide
    - Bacteria, effect of 41, 216
    - High density 179
    - Steam process 182
    - Temperature, effect of.... 180
  - Rapid-growth Douglas fir sulphate pulp 242

Blending chest for sulphate pulp..... 213
Blocking, definition of 269
Blow pit
- Construction 212
- Drainage system 212
- Pulp washing in 212
- Sulphur dioxide recovery 211

Board mill, English, war experiences .. 225
Board testing
- Bending quality 222
- Compressive resistance 137
- Insect resistance 175
- Ring crush test 137
- Rosin 187

Book paper mill, saveall in 156
Book review
- Advances in colloid chemistry (vol. 2) 246
- Applied energy conversion..... 150
- Boiler room questions and answers 44
- Basic problems of sales management 150
- Chemistry of carbon compounds—aromatic compounds 157
- Colloid chemistry, theoretical and applied (vol. 6) 164
- Developing marketable products and their packaging 154
- Encyclopaedia of chemical reactions 9:134
- Engineer in society 150
- Filtration 258
- German for the scientist 270
- Glycerin 47
- Introduction to emulsions 277
- Manufacture of quality lime 86
- Material trade names 102
- Manual for water plant operators .. 154
- Organic preparations 19
- Paper industry 228
- **Southern horizons 125**
- Surface active agents 9:142

BORLEW, P. B., and PASCOE, T. A. Potentiometric determination of sodium sulphide in sulphate black liquor 99
BRACEWELL, R. S. See Mosher, R. H.
BRAND, JOHN S. See Voet, A.
BRAUNS, F. E., and BUCHANAN, M. A. The reaction between thio compounds and lignin 229
—— and LANE, WILLIAM H. Thiophenol spruce lignin 78
Brightness of pulp mixtures, calculation of 75
BROOKBANK, E. B. Industrial uses of alkali lignin 138
BUCHANAN, M. A. See Brauns, F. E.
BUCHDAHL, R., POLGLASE, M. F., and SCHWALBE, H. C. Measurement of tone reproduction of halftone prints and uniformity of solid prints 193
Buna styrene, laminating adhesive 253
BURNINGHAM, F. A. Microscopy Committee report 128
BURSTEIN, VICTOR S. Method for ascertaining the rate of drying of paper and paperboard under machine conditions 103
Butyl mercaptan lignin 230

C

Cabinet, relative humidity 81
Cadelle 175
Calcium carbonate, water suspensions, calculation of properties 73
Calender, mechanics of 235
CAMPBELL, D. J. See Reichert, J. S.
CANADIAN DEPARTMENT OF MUNITIONS AND SUPPLY. See U. S. Forest Products Laboratory
Casein, laminating adhesive 254
Casein films, shrinkage of 134
Catalase 41
- Mechanical pulp bleaching, effect of 43

Catalase activity
- Bleachability, relation to 217
- Mechanical pulp, determination of 216

Catfaces, resin content, effect of sulphuric acid 127
Cellulose
- See also Beta-cellulose, Gamma-cellulose, Memicellulose, Holocellulose
- Cross linkages in 21
- Formaldehyde, action of 24
- Methylation, behavior in 22
- Phthalic acid ester 23
- Swelling behavior, effect of formaldehyde 25
- Wet strength, effect of formaldehyde 24

Cellulose nitrate
- Cross linkages in 23
- Viscosity 23

Cellulose sulphate, cross linkages in ... 23
Chip bins 261
Chippers 261
Chipping, problems of 260
Chips
- Aerated, pitch content 291
- Aerated, extractives content 292
- Digesters, packing in 261

Chlorine, catalase activity of mechanical pulp, effect on 213
Chlorinated rubber, laminating adhesive 257
Coatings
- Functional properties, use for 173
- Hot melt 173
- Lacquers 173
- Starch-resin for 136
- Synthetic resins 173

Contact angles for measure of pitch adhesiveness 289
Containers
- Insect resistance 175
- Metal parts 111

Costs, logging, formulas for 59
Cotton, wet strength, effect for formaldehyde 25
COUTURE, J. W. Remote control engineering of stock preparation equip-

ment 278
Cross linkages in cellulose 21
Cylinder machine
Saveall, use of 155
Stock inlet 152

D

D'ADDIECO, Alfred A. See Wise, L. E.
Deinked stock
Ash content on washing 287
Brightness, effect of washing 286
Hand sheets, preparation of 284
Washing mechanism 283
Washing with sodium hexametaphosphate 141
Dextrin film, shrinkage of 134
Dextrins, laminating adhesives 253
Digester
Chip packing 261
Engineering problems 261
Kraft process, circulating systems.. 233
Dihydroxydichlorodiphenylmethane 281
Douglas fir
Analysis 14
Holocellulose 34
Rapid growth, chemical analysis ... 239
Drier
Press felt, effect of 169
Press roll nip pressure, effect of .. 165
Wet streaks, cause of 169
Dri-Film process 173
Drying
Critical moisture content 108
Newsprint, suction presses in 165
Rate of
Basis weight, relation of 109
Machine conditions 103
Porosity, relation of 109
Temperature, relation of 108

E

Electric hygrometer 3
Employees
Complaints, handling of 273
Interview, technique of 274
Personnel problems 273
Supervisors, relation of 271
Ethanolamine, effect of holocellulose 15

F

Felts, mildewproofing of 281
Filter paper, tests for 131
Foils, blocking resistance, test for 269
FOOTE, WILLIAM J. Simple method for predicting the brightness of mixed pulp furnishes 75
FOREST PRODUCTS LABORATORIES OF CANADA. See U. S. Forest Products Laboratory
Formaldehyde
Cellulose, effect of 24
Pulp, effect on 25
Rayon, effect on 25
Fourdrinier machine
Saveall, use of 155
Stock inlet 151
FRIES, K. W. Easily hydrating pulp from poplar wood 223
Functional papers 172

G

Gamma-cellulose, determination of 61
GARRETT, F. A. Press section of a newsprint machine—study of suction presses and their relation to drying paper 165
Gelatin film, shrinkage of 134
GIBBS, RALPH. Production and fuel rates of rotary kilns burning lime sludge 189
Glue, laminating adhesive 255
GRAFF, JOHN H. Qualitative identification of synthetic resins 45
Grease, type of 280
Grease seals 281
GRIESHEIMER, R. N., and SAVAGE, R. H. A place for physicists in the pulp and paper industry 184
GRIFFIN, ROGER C. Report of Standards Committee for 1945 129
Gum arabic, laminating adhesives 253
Gum tragacanth, laminating adhesives.. 253

H

Handsheets of deinked stock, preparation of 284
Hardwood
Kraft pulps, acetylation properties 36
Summative analysis 14
HATCH, R. S. Magnesium base sulphite pulping 118
Heaters for kraft digesters 234
Hemicellulose
Ash content 17
Beating, effect of 33
Determination of 16
Errors in 17
Holocellulose, extraction from 16
Pulp, function in 31
Pulping, role in 32
Hemicellulose A 14
Hemicellulose B 14
HEUSER, EMIL. Cross linkages in cellulose and their practical implications 21
HINEGARDNER, W. S. See Mills, R. T.
HJERMSTAD, E. T. See Kesler, C. C.
Holocellulose
Acid chlorite method 13
Alkaline extraction 16
Degree of polymerization 16
Douglas fir 34
Hemicellulose, extraction of 16
Isolation methods 11
Nitrogen content after ethanolamine treatment 15
Yields 34
Hot melt coatings 173
HOWARD SMITH PAPER MILLS, LTD. See U.S. Forest Products Laboratory
Hydrogen ion concentration, effect on sizing 123

I

INGALLS, EUGENE G. Evaluation and classification of sulphite pulps 177
INSTITUTE OF PAPER CHEMISTRY. Instrumentation studies. LII. Penetration of papers by water vapor. VI. Progress report on the development of two new electric methods for the measurement of water-vapor permeability 1
——. Instrumentation studies. LIII. Penetration of papers by water vapor. VII. Progress report on the further development of a new electric dynamic method for the measurement of water-vapor permeability 51
——. Instrumentation studies. LIV. Penetration of papers by water vapor. VIII. Controlled relative humidity cabinet in which specimens may be weighed without removal from the conditioned atmosphere 81
Iodine stain, reaction with synthetic resins 46
Isobutylene resins, laminating adhesives 256

J

JOHANSON, GUST C. E. Few predominant problems in acid pulping and their sources 247

K

Karaya gum, laminating adhesive 253
KESLER, C. C., KILLINGER, J. E., and HJERMSTAD, E. T. Film properties and utilization of resin-starch 133
KILLINGER, J. E. See Kesler, C. C.
KILLINGSWORTH, R. B. See Padgett, F. W.
Kiln, rotary
Combustion, control of 189
Heat requirements 190
Lime sludge 189
Optimum production rates 190
KLINGER, L. L. Improvements in the coagulation of surface waters with activated silica—developments in batch and continuous preparations 158
Knotter screens 214
Kraft process
Digester, circulating systems 233
Water, quality of, for 221
Kraft pulp
Acetylation properties 36
Poplar, easily hydrating 223
KRESS, OTTO, and NETHERCUT, PHILIP E. Evaluation and reduction of pitch troubles in sulphite pulp and pulping 289

L

Labor relations
Company policy 272
Supervisor, responsibility of 271
Lamination, requirements 257
LANE, WILLIAM H. See Brauns, F. E.
LEA, NORMAN S. Rapid method for the determination of beta- and gamma-cellulose 61
Lesser grain borer 175
LEVY, ROBERT M. See Schur, M. O.
Lignin
Alkali, uses of 138
Benzyl mercaptan, reaction with.. 230
Butyl mercaptan, reaction with ... 230
Hydrochloric acid 230
Sodium sulphide, action of 230
Paper-base laminates, use in 143
Soda, use in paper-base laminates 143
Thioglycolic acid, reaction with .. 229
Thiophenol 78
Lime sludge, rotary kiln for 189
Logging
Costs, formulas for 57
Preplanning for minimum costs 57
Lubrication
Antifriction bearings 280
Grease 280

M

McEWEN, ROBERT L. High density bleaching of mechanical pulp with hydrogen peroxide 179
McGREGOR, GEORGE H. Sulphite pulps—handling after the digester... 211
McKINNEY, J. W. Effect of alkaline pulping on the acetylating properties of wood pulp 36
MARTIN, J. STANLEY. Production of bleachable sulphate pulps from rapid-growth Douglas fir 239
MASHBURN, R. T. See Ware, H. O.
MATTHEWS, DON M., and WILLARD, JOHN A. Preplanning of logging operations for minimum cost 57
Mazein, laminating adhesive 254
Mechanical pulp
Bacteria content 42
Determination of 217
Bacterial count and catalase activity 217
Bleachability and catalase activity.. 217
Bleaching, hydrogen peroxide
Catalase, effect of 216
High density 179
Catalase activity
Chlorine, effect of 218
Determination of 216
Sodium hypochlorite, effect of.. 218
Temperature, effect of 218
Peroxide bleaching, effect of bacteria 41
Sulphate pulp mixture, calculation of brightness 75
Metal parts, packaging 111
Metallic films, test for blacking resistance 269
Methylcellulose 22
Laminating adhesive 253
Mildew, origin in paper mill 282
Mildewproofing, dihydroxydichlorodiphenylmethane for 281
MILLER, LEWIS B. Quality of process water used in kraft paper manufacture 221
MILLS, R. T., HINEGARDNER, W. S., and STAUFFER, W. O.
Peroxide bleaching of mechanical pulps. Influence of bacteria and enzymes. II, ... 216
See also Reichert, J. S.
MORRISON, H. A. White water reuse and disposal 155
MOSHER, R. H., and BRACEWELL, R. S. Functional papers 172
MOSS, LAMAR A. Effective bleach liquor system for rag halfstock bleaching 153
Mothproofing with dihydroxydichlorodiphenylmethane 282
MURPHY, MAXINE. See Wise, L. E.

N

NADELMAN, A. H. See Bailey, H. P.
National Council for Stream Improvement 9:124
NETHERCUT, PHILIP E. See Kress, Otto.
Newsprint, drying, suction presses in.. 165
Newsprint machine
Press section 165
Suction box adjustment 169
Nitrogen, holocellulose content 15
N-Sol A (silica) 159
N-Sol B (silica) 159

O

Oxycellulose, salts of 23

P

Packaging
Conforming pack 111
Desiccants in 111
Metal parts 111
Methods of 111
Nonconforming method 111
PADGETT, F. W., and KILLINGSWORTH, R. B. Tensile strength of paraffin waxes 201
Paper
Absorbents sulphite pulp, requirements of 178
Asphalted, bleeding resistance 263
Blocking resistance, test for 269
Breakdown gradient
Apparatus for 64
Factors in 67
Coating to develop functional properties 173
Dielectric strength 63
Functional 172
Glassine
Popular pulp for Sulphite pulp, requirements for 178
Greaseproof, sulphite pulp requirements for 178
Machine coated, supercalendering.. 235
Print reproduction, effect on 193
Printing ink penetration, speed of 264
Sulphite pulp, characteristics of, for 177
Paper base laminates
Laminating pressures 148
Lignin coated 147
Lignin filled 143

Paper orientation in 148
Paper industry
Physicist in 184
Technical education in 278
Papermaker, co-operation with printer.. 275
Paper testing
Blocking resistance 269
Filter paper 131
Insect resistance 175
Relative humidity cabinet 81
Review, 1944-1945 ..... 9:130
Rosin 187
Sizing, ink-line test 121
Water-vapor permeability
Dynamic electric method 1, 51
Electric method 1
Relative humidity cabinet 81
Steady-state electric method .. 1
Wax seal for 5
Paper Testing Committee, report, 1945 9:132
Papermaking materials, British experience during war 227
PASCOE, T. A. See Borlew, P. B.
Patents, United States 27, 208
Perkins tensile tester for wax 202
Permutit Reclaimer for water treatment 249
PETERSON, GEORGE H. Problems of the printer and how the paper industry can co-operate with him 275
O-a-Phenylethylphenol, penetration of paper 267
Physicist in pulp and paper industry.. 184
Pigments, water suspensions, calculation of properties 73
Pitch
Adhesiveness, measure of 289
Chip aeration, effect of 291
Pulp, evaluation of 290
Spiral screen for study of 290
Plastics
See also Paper base laminates
Alkali lignin, use of 138
POLGLASE, M. F. See Buchdahl, R.
Polyamide resins, laminating adhesive.. 257
Polyvinyl acetate, laminating adhesive 253
Polyvinyl alcohol
Film, shrinkage of 134
Laminating adhesive 254
Ponderosa pine, analysis 18
Press felts, effect on drying of newsprint 169
Press roll
Crowning 167
Nip pressures 165
Pressure distribution on 166
Types 165
Preventol GD 281
Print reproduction, factors in 193
Printer
Papermaker, co-operation with 275
Problems of 275
Printing, future of 115
Printing ink
Future of 115
Paper, penetration of
Speed of 264
Temperature, effect of 268
Vehicle, effect of 267
Wire and felt side 266
Print reproduction, effect on 193
Vapolith 116
Vaposet 116
Pulp
Acetylation properties 36
Acid precook, effect of 38
Alkaline pulping, effect of ... 36
Alkaline pretreatment of chips, effect of 37
Kraft-sulphite cook, effect of.. 38
Pulping temperature, effect of.. 37
Sulphidity, effect of 37
Alkali solubility, effect of formaldehyde 25
Brightness of mixed furnishes, calculation of 75
Deinked, See Deinked stock
Dielectric properties 63
Formaldehyde-treated, properties of 25
Hemicelluloses, function of 31
Kraft, acetylation properties 36
Pitch, evaluation of 290
Poplar, easily hydrating 223
Sulphate, summative analysis 19
Summative analysis 18
Washing, problems of 262
Pulp industry, physicist in 184
Pulp testing, sulphite pulp for various uses 177
Pulping, function of hemicelluloses ... 32
Pulpwood
Barking problems 260
Chipping, problems of 261
Douglas fir, rapid growth 239
Hauling costs 60
Loading costs 61
Pine, catfaces, resin content 126
Poplar 223
Transportation costs, factors in ... 58
Unloading from cars 259
Wood yard, handling in 259
Pumps, kraft digesters 234

R

Rag mill, bleach liquor handling system 153
Raspail test, reaction of synthetic resins in 46
Formaldehyde, effect of 25
Wet strength, effect if formaldehyde 25
Reclaimer treatment of water 249
Redwood, analysis 14
Refiner, functions of 279
REICHERT, J. S., MILLS, R. T., and CAMPBELL, D. J.
Peroxide bleaching of mechanical pulps. Influence of bacteria and enzymes. I. 41
Relative humidity, determination of .. 84
Relative humidity cabinet 81
RIETZ, R. C., and ANDERSON, L. O.
Use of paperboard as a sorptive material in protective packaging 111
Rifflers, sulphate pulp 214
Roads, factor in logging costs 58
Rosin
Paper and board, determination in 187
Qualitative tests 187
Rosin-sodium stearate size 124
Rubber, chlorinated, laminating adhesive 257

S

SAVAGE, R. H. See Griesheimer, R. N.
Savealls, value of 155
SCHENCK, G. R. Some reflections on the responsibilities of supervisors in the field of labor relations 271
SCHUR, MILTON O., and LEVY, ROBERT M. Ink-line test for the determination of degree of sizing in writing paper 121
SCHWALBE, H. C. See Buchdahl, R.
Screens, sulphite pulp 214
SCRIBNER, B. W. Developments in the physical testing of paper during 1944-1945 ..... 9:130
——. Paper Testing Committee report, 1945 ..... 9:132
Semichemical pulp, poplar 223
Silica, surface water coagulation of... 158
Silicones, laminating adhesives 255
Sizing
Calender, starch-resin for 136
Hydrogen ion concentration, effect of 123
Rosin vs. tall oil 124
Rosin-sodium stearate mixtures ... 124
Tub, starch-resin for 136
SKOLNIK, HERMAN, and SNOW, ALBERT G., Jr. Resin impregnation of catfaces. Effect of new methods of turpentining upon the resin content of slash pine catfaces 126
SMITH, STANLEY F. Experiences at an English paperboard mill throughout the war 225
SNOW, ALBERT G., Jr. See Skolnik, Herman
Soda pulp, washing problems 262
SODERBERG, FREDERIC A. Mildew-proofing of paper mill felts 281
Sodium chlorite, isolation of holocellulose with 15
Sodium hexametaphosphate
Deinked stock, washing of 141
Scale removal with 142
Sodium hypochlorite, effect on catalase activity of mechanical pulp 218
Sodium peroxide
Catalase, effect of 43
Stability, effect of bacteria on 42
Sodium silicate, laminating adhesive.... 255
Sodium sulphide
Black liquor, determination of 99
Poplar, pulping of 224
Soybean, laminating adhesive 254
Sprucewood
Benzyl mercaptan, reaction with .. 230
Butyl mercaptan, reaction with .. 230
Thioglycolic acid, reaction with ... 229
STAEGE, S. A. Stock inlet for paper and paperboard machine 151
Stains for synthetic resins 45
Starch, laminating adhesives 253
Starch films
Moisture adsorption and desorption 134
Shrinkage, measure of 133
STAUFFER, W. O. See Mills, R. T.
Stock inlet
Pressure control 152
Tapered ducts 151
Stock preparation equipment
Centralized control 278
Integration of 278
Storage batteries, alkali lignin in 139
Strainers for kraft digesters 233
Straw bale, specifications, ... 199
Strawboard industry 198
Stream pollution, studies in progress.. 9:124
Suction press, roles in newsprint drying 165
Sulphate pulp
Douglas fir, rapid growth 239
Bleaching 242
Paper base laminates, use for 145
Washing problems 262
Sulphite process
Blow pit, sulphur dioxide recovery from 211
Heat recovery 212
Magnesium base 118
Problems 247
Swedish conditions 247
Sulphite pulp
Blending chest 213
Centrifugal screens 214
Chemical conversion, tests for 177
Cleanliness 248
Flat screens 214
Future of 9:138
Sulphite pulp
Imports 9:138
Knotter screen 214
Market sales 9:138
Mechanical pulp mixtures, calculation of brightness 75
Paper conversion, qualities for ... 177
Poplar 224
Rifflers 214
Statistical review 9:136
Swedish vs. domestic 247
Uses 9:138
Vacuum type filter 213
Washing variables in blow pit 212
Sulphite waste liquor, magnesium base 118
Sulphur dioxide, recovery from blow pit 211
Supercalender
Mechanics of 235
Modern construction 236
Rolls 236
Supercalendering of machine-coated paper 235
Supervisors, responsibilities in field of labor relations 271
Synthetic resins, qualitative identification 45

T

Tall oil size 124
TAPPI. Bending quality of paperboard 222
——. Bleeding resistance of asphalted paper 263
——. Blocking resistance of paper and flexible materials 269
——. Compression resistance of paperboard (ring crush test) 137
——. Insect resistance of packages, paper, and paperboard 175
——. Rosin in paper and paperboard.. 187
——. Testing analytical filter paper .. 131
TAPPI Fibrous Agricultural Residues Committee meeting 198
TAPPI Microscopy Committee report .. 128
TAPPI Standards
Status of 129
T 408 m-46 187
T 471 sm-46 131
T 472 m-46 137
T 473 sm-46 175
T 474 sm-46 222
T 475 m-46 263
T 477 m-46 269
TAPPI Standards Committee report .. 129
Tensile tester for wax 204
Texchrome stain for synthetic resins ... 46
Thioglycolic acid
Lignin, reaction with 229
Willstätter spruce lignin, reaction with 229
Thiophenol, reaction with lignin 78
THOMAS, E. E. Supercalendering of paper machine coated paper 235
Titius-Olsen plaster tester for waxes.. 203
Tone reproduction of prints, factors in 193
TORREY, W. V. Determination and calculation of physical constants of water suspensions of pigments 73

U

U. S. FOREST PRODUCTS LABORATORY, HOWARD SMITH PAPER MILLS, CANADIAN DEPARTMENT OF MUNITIONS AND SUPPLY, and FOREST PRODUCTS LABORATORIES OF CANADA. Lignin-filled laminated-paper plastics 143
Urea-formaldehyde resins, laminating adhesives 257

V

Vapolith ink 116
Vaposet inks 116
Vegetable gums, laminating adhesives.. 253
VINCENT, REX. Importance of hemicellulose in wood pulp 31
——. Sulphite pulp—its position in chemical and paper fields today 9:136
VOET, ANDRIES, and BRAND, JOHN S. Speed of penetration of printing ink into paper 264

W

WADLEIGH, GEORGE R. Some aspects of pulp mill engineering..... 259
WARE, H. O., and MASHBURN, R. T. Deinking of waste papers. Analysis of the mechanism of washing 283
Washing
Deinked stock 286
Rate of 284
Hollander beater, efficiency of 285
Water
Fox River, analysis of 163
Kraft process, quality for 221
Reclaimer treatment 249
Water
Surface

Activated silica treatment 158
Coagulation 158
Wisconsin River, analysis of 159
Wax
Breaking strength 205
Modulus of rupture test 205
Tensile strength 201
Aging, effect of 206
Rate of loading, effect of 206
Temperature, effect of 207
Waxes, laminating adhesives 256
WEST, CLARENCE J. United States patents on papermaking 27, 208
WEYMOUTH, F. A. Future of printing—as we see it 115
White water
Coagulants for 250
Flocculation 157
Reclaimer treatment 249
Reuse 155
Stock recovery 249
Vacuum savealls for 155
WILCOX, J. M. Kraft digester circulating and indirect systems 233
WILLARD, JOHN A. See Matthews, D. M.
WINGET, RUSSELL L. Present status of the pulp, paper, and paperboard industry's stream improvement program 9:124
WISE, LOUIS E., MURPHY, MAXINE, and D'ADDIECO, ALFRED A. Chlorite holocellulose—its fractionation and bearing on summative wood analysis and on studies on the hemicelluloses 11
Wood, summative analysis 18
Wood yard, engineering problems in.. 259
Writing ink, ink-line test for sizing .. 123

Z

Zein, laminating adhesives 254

Specifications for Chemical Composition of Process Water For Kraft Paper Manufacture*

TAPPI Tentative Standard E 601 s-46

This specification should be considered only as a guide in determining the quality of water to be used in the manufacture of kraft papers.

Definition

By kraft papers are meant coarse papers composed of unbleached wood fibers produced by the sulphate process and used primarily for wrapping and other packaging purposes. High-grade sulphate papers, bleached or unbleached, such as condenser tissue, writing, book, file folder, electrical insulating, and metal wrapping, require water as specified in TAPPI Standard E 600 s-44.

Chemical Composition

The water shall not contain impurities in excess of the amounts given below, expressed in parts per million and in terms of the substances indicated:

Substance	Maximum for Kraft Paper, p.p.m. Bleached	Unbleached
Turbidity as SiO_2	40	100
Color in platinum units	25	100
Total hardness as $CaCO_3$	100	200
Alkalinity to methyl orange as $CaCO_3$	75	150
Iron as Fe	0.2	1.0
Manganese as Mn	0.1	0.5
Silica (soluble) as SiO_2	50	100
Total dissolved solids	300	500
Free carbon dioxide as CO_2	10	10
Chlorides as Cl	200	200

Notes

1. Chlorides are limited to 200 p.p.m. because chloride concentrations in excess of this amount are effective in promoting corrosion of metal parts in the manufacturing system.

2. A limit for organic materials is not included since the nature of the organic material is a controlling factor. For some types a much higher limit may be allowable than for others. The limit on color has a limiting effect on some of the more objectionable types of soluble organic matter. In general, organic materials should be kept as low as possible in process water.

3. This specification deals with process water for kraft paper manufacture. It does not apply to the process water to be used for kraft pulp manufacture.

Reference

Miller, Lewis B., "Quality of Process Water Used in Kraft Paper Manufacture," *Paper Trade J.* 122, No. 20: 59 (May 16, 1946).

* This specification has been approved as a tentative standard by the Water Committee. Criticisms are earnestly requested and should be sent to R. G. Macdonald, Secretary, Technical Association of the Pulp and Paper Industry, 122 E. 42nd St., New York 17, N. Y.

Reagent Chemicals and Standards

D. Van Nostrand Company has just issued the 2nd Edition of Reagent Chemicals and Standards by Joseph Rosin, chief chemist of Merck & Company, (542 pp. 6 x 9). In this book the author has brought the mature judgment of more than 25 years of experience in the production of reagents and standards. The present volume is more comprehensive in its scope than any similar publication.

Among the subjects covered are: solutions used as reagents; standard solutions; the arsenic test; reagents; volumetric solutions, their preparation and standardization; indicators; equivalents of normal and tenth-normal solutions; freezing point determination; nitrogen determination; water determination; sulphur determination by the Parr bomb method; pH; buffer solutions.

Hundreds of chemicals are mentioned, giving their assay method, solubility, residue on ignition and other information of pertinent interest to the chemical being considered.

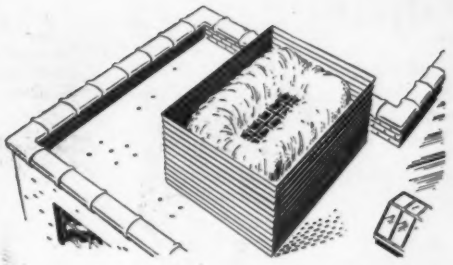
Copies may be obtained from the Book Department of the Technical Association of the Pulp and Paper Industry, 122 East 42nd Street, New York 17, N. Y. at $7.50 per copy.

New TAPPI Members

The Executive Committee of the Technical Association of the Pulp and Paper Industry has elected the following to membership:

Thomas C. Catlin, Technical Director, Gilbert Paper Company, Menasha, Wis., is a 1939 graduate of the University of Wisconsin, and was formerly employed by the Kimberly-Clark Corporation, Neenah, Wis., the Marathon Corporation, Menasha, Wis., and the Chemical Warfare Service, Pine Bluff Arsenal, Arkansas.

Rene A. Schneider, Chemist, The Ohio Boxboard Company, Rittman, Ohio, is a 1942 graduate of Kent State University.



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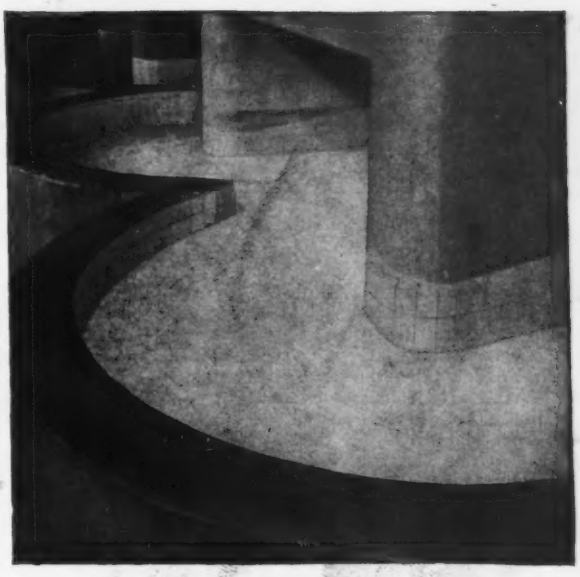

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Darmstadt Scott & Courtney, Empire Gladstone, Pernambuco, 113 bls. old bagging.

Americale Trading Co., Inc., Empire Gladstone, Pernambuco, 153 bls. waste cloth strips.

Schimmel Trading Co., Empire Gladstone, Pernambuco, 130 bls. cotton waste.

Cowa Co., Delius, Rio de Janeiro, 43 bls. cotton picker waste; 74 bls. cotton fly waste.

Americale Trading Co., Inc., Mormacport, Buenos Aires, 20 bls. threadwaste.

D. Pottasch, Empire Gladstone, Fortaleza, 141 bls. cotton waste.

(———), Fort Ticonderoga, Liverpool, 76 bls. threadwaste.

Cecil Kutz, Dennison Victory, Fortaleza, 56 bls. cotton waste pickers.

Camden Fibre Mills, Mount Davis, Bombay, 50 bls. cotton waste.

Riverside Mills, Mount Davis, Bombay, 200 bls. cotton waste.

Padawer & Co., Mount Davis, Bombay, 250 bls. cotton waste.

J. Berlage Co., Ruben Dario, Rio de Janiero, 25 bls. cotton waste.

(———), City of Florence, Madras, 447 bls. cotton waste.

Padawer Trading Co., Inc., City of Florence, Madras, 133 bls. cotton waste.

Lush Cotton Products Co., City of Florence, Madras, 600 bls. cotton waste.

Schimmel Trading Corp., Comamdante Lyra, Rio de Janiero, 190 bls. cotton waste.

Tradesmans National Bank Trust Co., Boston City, Cardiff, 469 bls. old khaki webbing.

Continental Bank Trust Co., Boston City, Bristol, 727 bls. old overalls.

The Croger Co., Victorialoide, Recife, 124 bls. picker waste.

Cecil Kutz, Victorialoide, Recife, 401 bls. cotton pickers.

GLUESTOCK, ETC.

Darmstadt Scott & Courtney, Comandante Lyra, Rio de Janiero, 91 bls. gluestock.

(———), Delius, Buenos Aires, 47 bls. gluestock.

Darmstadt Scott & Courtney, Victorialoide, Recife, 86 bls. dry gluestock.

Wessel Duval & Co., Mormacport, Rio de Janiero, 200 bags boneglue.

1st National Bank of Boston, Coastal Challenger, Havana, 421 bags gluestock.

Karr Ellis & Co., Fort Ticonderoga, Liverpool, 250 bags dry hide cuttings.

J. Gorvers, Ruben Dario, Rio de Janiero, 88 bls. gluestock.

CASEIN

American Cyanamid & Chemical Corp., Delius, Buenos Aires, 7200 bags lactic casein, 360,000 kilos.

Hercules Powder Co., Delius, Buenos Aires, 2000 bags lactic casein, 100,000 kilos.

Keller Dorian Corp., Mormacport, Buenos Aires, 500 bags ground lactic casein, 25,000 kilos.

Colloids, Inc., Sun International Co., Mormacport, Buenos Aires, 500 bags casein, 25,000 kilos.

Casein Co., of America, Div. The Borden Co., Mormacport, Buenos Aires, 9445 bags lactic casein, 400,000 kilos.

American Cyanamid & Chemical Corp., Tekla, Buenos Aires, 9877 bags lactic casein, 50,829 kilos.

BOSTON IMPORTS

Cecil Kutz, Delius, Rio de Janiero, 81 bls. cotton picker waste.

1st National Bank of Boston, Delius, Santos, 230 bags boneglue.

PHILADELPHIA IMPORTS

Evening Bulletin, Cornerbrook, Cornerbrook, N. F., 4832 rolls newsprint.

Philadelphia Inquirer, Cornerbrook, Cornerbrook, N. F., 1092 rolls newsprint.

Combination Starts for Electric Motors

MINNEAPOLIS, Minn.—Electric Machinery Manufacturing Company, has introduced a new line of "Hi-Fuse" Polarized Field Frequency Synchronous Motor Controls with current-limiting fuses. These general-purpose, high-voltage combination starters are suitable for general installation in industrial plants with high voltage service, and are usually applicable without necessity of engineering analysis of short circuit currents, yet provide interrupting capacity generally adequate for all except the largest distribution systems. The "Hi-Fuse" Control is a logical complement to the low-voltage combination synchronous motor starters which are universally used, providing (1) disconnecting means, (2) short-circuit protection, and (3) motor over-load protection. Furnished in voltage ratings up to 5000 volts, with a current interrupting capacity of 60,000 amperes asymmetrical. Enclosures available: NEMA Types 1, 1-A, 5.

Abitibi Studies Plan to Reopen Sturgeon Falls

NORTH BAY, Ont.—D. W. Ambridge, president of the Abitibi Power and Paper Company, Limited, decelared in a telephone interview that company officials are "studying the situation" at the long-idle pulp and paper mill at Sturgeon Falls. For some time reports have persisted that the mill would operate again. "Engineering studies," said Mr. Ambridge, were being made and the investigation might continue for several months. He declined to elaborate on his statement about the work. "We have no intention of selling the plant and any investigations that are being conducted are being made by our company," he stated.

SMOKE WILL RISE FROM A THOUSAND CHIMNEYS

The industrial South is just beginning to come into its own. Actually, the surface has hardly been scratched in the realm of industrial possibilities in many localities.

As the South marches forward in the parade of events to become a far-flung industrial empire, its manufacturing leaders must see that its expansion is soundly based and expertly engineered to avoid those pitfalls which haphazardly-planned, unengineered expansion might bring.

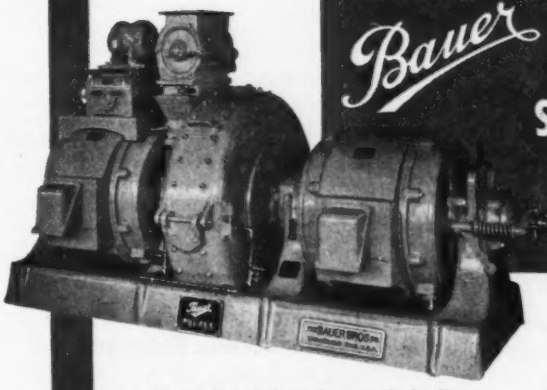
We offer complete engineering, designing, production cost analysis and other services which enable you to appraise your future operations on a planned and intelligent basis.

THE McPHERSON COMPANY
Greenville, South Carolina

Industrial Engineers

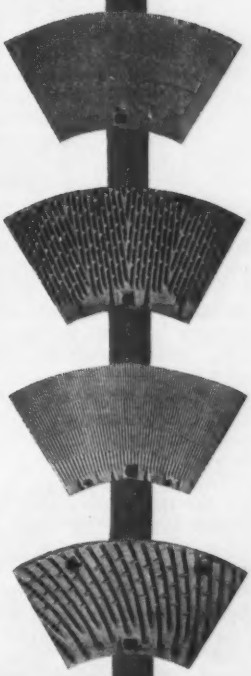
INDUSTRIAL SURVEYS • PLANT SITE INVESTIGATIONS • COMPLETE PLANT DESIGNS • APPRAISALS • VALUATIONS • LABOR SAVING STUDIES • RESEARCH & REPORTS • PROCESS ANALYSIS • PLANS

TEXTILE MILLS – BLEACHERIES – RAYON PLANTS – PULP & PAPER MILLS – DYE HOUSES – KNITTING MILLS – HOSIERY MILLS
WATER TREATMENT – INDUSTRIAL WIRING – STEAM UTILIZATION – WASTE DISPOSAL – ELECTRIFICATION



Bauer

PULPER SALES SHOW GAIN OF 154%



These days such an increase in itself may mean little — until we add that repeat orders from satisfied users account for much of that increase.

Five Bauers to mills making toilet tissue; *Ten* Bauers to mills running rotogravure, book and other fine papers — also newsprint. *Several* Bauers for another mill group running a wide variety of grades.

Still other Bauers for other large mills or mill chains.

Therein you have a true measure of acceptance of the Bauer Pulper for fast, efficient and economical pulping of a wide range of stocks, reject salvaging, etc. Two sizes. Full range of plate patterns. Further information, with technical data, furnished on request.

THE BAUER BROS. CO.
SPRINGFIELD, OHIO

Week's Record of Trends in The Pulp and Paper Market

Office of the PAPER TRADE JOURNAL,
Wednesday, August 14, 1946.

Tight supply situation in market paper and board which has confronted the converting industry over the past several months threatens to become even worse during the third quarter. Outlook for primary paper production in this quarter is not too encouraging. Summer holidays are causing many mills to shut down for periods up to two weeks, which will result in the usual seasonal drop in output. Disappointing volume of overseas pulp imports has forced mills using market pulp to draw heavily on inventories with little immediate prospect of replenishing them.

Movement toward integrated operations is estimated to have withdrawn approximately 6 per cent (of which about 2 per cent is in printing papers and 4 per cent in paperboard and other grades of paper) of total paper and board production from the open market with the sale of some 30 mills to converters and consumers of various types of paper and board. Resulting shortage in the market is already forcing some converters to shut down for more or less protracted periods thus causing loss of production as well as less efficient operation when running. While this move toward integration reduces the market supply of primary paper, at least till sufficient news production comes in to compensate for it, there should be little if any decrease in the over-all supply of converted products. There is some dislocation in the distribution pattern but the total tonnage will very likely increase. Supply situation is particularly tight in the lower grades of paper and board as mills continue upgrading to produce more profitable lines.

Production of kraft bag and shipping sack paper continues to be proportionately greater than wrapping and other converting kraft papers; with supplies of all types still short in demand. One large paper converting company has decided to branch out into the paper jobbing business because of the difficulty experienced in obtaining supplies of toilet tissue stock, paper rolls, and similar items. Book papers, coated and uncoated, tissue and absorbent papers are reported to be in shortest supply.

The index of general business activity for the week ended August 3 fell to 137.9 from 138.1 in the previous week, compared with 139.1 for the corresponding week in 1945. The index of paperboard production rose to 165.9 from 159.0 in the previous week, compared with 152.5 for the corresponding week in 1945.

Paper production for the week ended August 3 was estimated at 105.2 per cent compared with 104.7 for the preceding week, with 93.6 for the corresponding week in 1945, with 89.8 for 1944, with 89.5 for 1943, and with 81.4 per cent for the corresponding week in 1942.

Paperboard production for the week ended August 3 was 98.0 per cent of capacity, compared with 95.0 per cent for the preceding week, with 94.0 for the corresponding week in 1945, with 96.0 for 1944, with 94.0 for 1943, and with 75.0 per cent for the corresponding week in 1942.

Wood Pulp

During the first half of the year domestic consumption of wood pulp was 6,225,000 tons, while new supplies (domestic production, imports less exports) totaled 6,050,000 tons according to estimates of the United States Pulp Producers Association.

Over 300,000 tons of pulp have been imported from Sweden to date since January 4, which seems to contradict a recent story appearing in a leading New York newspaper which stated that since Sweden was using wood pulp for fuel that country was not likely to produce more than 500,000 to 700,000 tons of wood pulp in 1946. Reliable trade sources tell us that Sweden has already produced over a million tons of wood pulp this year. Certainly the latter figure is more in line with the 300,000 tons of pulp which has arrived here from Sweden to date.

Rags

Demand for new cotton cutting remains firm to strong, with upgrading still practiced in most cases. Combination sales of uncontrolled items with cuttings enable dealers to pay fancy prices for white cuttings obtained in deals with other items. Still, there are no 10c white shirt cuttings.

Heavy wipers have eased down $50 to $53 per ton in deals with classification stock at $29 to $31 at a 3 to 1 ratio. Dealers are still very slow to pay $75 to $80 dock, which is the asking price for most foreign dark cottons.

Old Rope and Bagging

Market for old rope continues steady. Large sisal rope brings 4.75c, small sisal 4c, and Manila 5.75c. Demand is strong for soft white jutes at 5 to 5.50c. Mixed strings bring 1.75 to 2.00c.

Bagging market is firm, with No. 1 scrap bagging at $4.50 delivered to paper mills. Mixed bagging brings $4 shipping point in Southern areas. No. 1 old gunny and mill run bagging brings $4.00.

Waste Paper

Now that the two New York paper board mills are back in operation at a combined production rate of 600 tons every 24 hours, after a two month strike, surplus waste paper in this area is gradually being absorbed. Corrugated has eased up somewhat in the New England area; although some reports indicate sales were at full $23 ceiling.

Top grades of waste paper are still in strong demand in all areas, with large volumes of white shavings grabbed up at $67.50 ceiling. Tabulating cards bring $45 easily. Book stock remains relatively easy at $38.50 for large bales of relatively good quality stock.

N.A.W.M.D. Opposes Freight Rates Increase

The National Association of Waste Material Dealers, Inc., speaking in behalf of all branches of the Waste Material Industry represented in its membership, and the New York Association of Dealers in Paper Mills' Supplies, Inc., speaking in behalf of the waste paper and rag interests of Metropolitan New York, submitted strong statements at the hearings held in Buffalo this week by the Interstate Commerce Commission covering the request of the railroads for a 25 percent increase in freight rates. Previous to the filing of these statements which were in affidavit form both organizations held a number of conferences and had the benefit of counsel through Charles J. Browne, Commerce Counselor with offices at 217 Broadway, New York City.

Both organizations emphasized the need of putting waste materials so far as increases were concerned into some category carrying a lower basis of increased rates than industrial commodities if the Commission should decide that any increase above the present temporary 6 percent is justified.

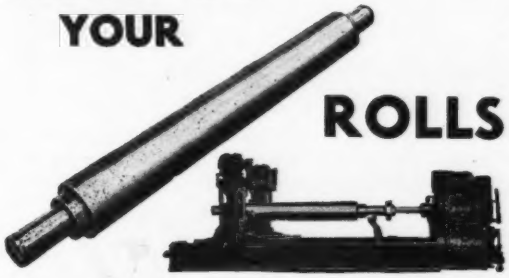
The prepared statements were signed for the National Association of Waste Material Dealers, Inc., by Charles M. Haskins, its managing director, and for the New York Association of Dealers in Paper Mills' Supplies, Inc., by Walter H. Martens, chairman of the Transportation Committee of that Association.

Throckmorton Heads Group To Standardize Packages

E. A. Throckmorton, president of the Container Testing Laboratories, has been elected chairman of Packaging Institute's standing committee on trade standards and practices responsible for the packaging industry's newly initiated standardization program. Mr. Throckmorton, a past director of the Institute, before becoming President of Container Laboratories last March, was vice-president in charge of development of Container Corporation of America. Container Testing Laboratories are located in New York, Chicago and San Francisco.

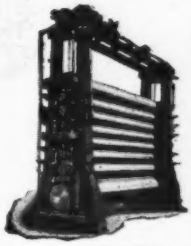
★ ★ LOBDELL ★ ★

SEND US YOUR ROLLS



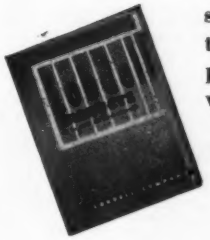
FOR VERY PROMPT RECONDITIONING

Let Lobdell Roll Grinding Service speed your calender, couch, press, or other rolls back into service, promptly, with *new roll* accuracy and high finish. Skilled personnel will recondition them *to your specifications* and *return them to you without delay.*



REASONABLY PROMPT DELIVERY ON *NEW* ROLLS

And when you need a *new* roll, remember Lobdell "PURALOY". They are 10 to 15% harder and more resistant to abrasion and corrosion than ordinary chilled iron rolls.



Lobdell also makes CHILLED IRON ROLLS . . . for average service . . . carefully controlled during "chilling" to produce a uniformly hard wearing surface.

Get complete information about Lobdell Machinery for the Paper and Allied Industries. Send for our catalog.

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COMPANY WILMINGTON 99, DEL.

...olls • Calender Stacks • Roll Calipers • New Improved Roll Grinding Machines

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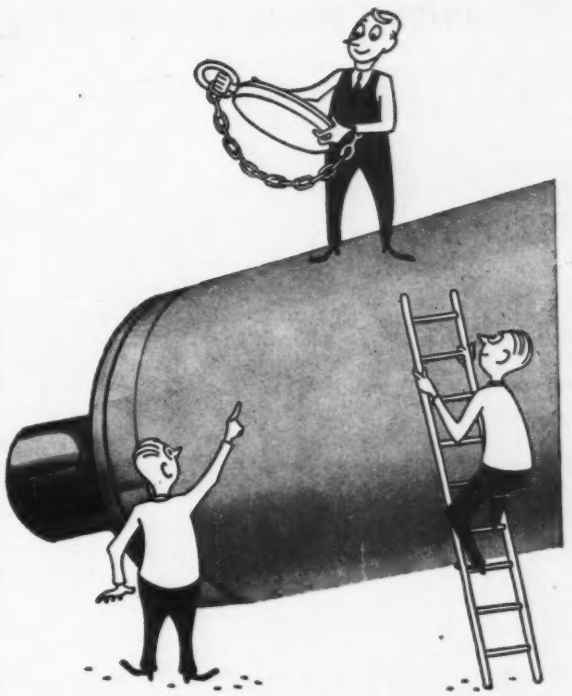


Longer Life for Calender Rolls

In many mills a single Butterworth Calender Roll placed in the stack with other rolls has given many extra hours of service without requiring turning down or refilling, and led these mills to standardize on Butterworth Calender Rolls.

We invite you to make this simple test . . . Place one Butterworth Calender Roll in the Stack with any other Roll. Time it. See how many hours it runs without requiring turning down or refilling. We believe that your figures will show the practical value of standardizing on Butterworth Calender Rolls. Remember, the finish on the paper can only be as good as the rolls in the calender.

We furnish new rolls or will refill your present rolls.

• • •

For full information, write or call H. W. Butterworth & Sons Company, Philadelphia 25, Pa. — Textile Finishing Machinery Company Division, Providence, R. I. : : Charlotte, N. C., 1211 Johnston Bldg. : : In Canada — W. J. Westaway Co., Hamilton, Ont.

Butterworth CALENDER ROLLS

MISCELLANEOUS MARKETS

Office of the PAPER TRADE JOURNAL,
Wednesday, August 14, 1946.

BLANC FIXE—Current demand is reported fairly active. Pulp is currently quoted at $40 per ton, in barrels, car lots, at works; the powder is currently quoted at $60 per ton, car lots f.o.b. works.

BLEACHING POWDER—Favorable supply situation is reported with containers more readily available. Market remains tight, demand steady. Quotations are unchanged. Prices on bleaching powder range from $2.50 to $3.10 per 100 pounds, in drums, car lots at works.

CASEIN — Prevailing prices on processed acid-precipitated casein are as follows: 10,000 pounds or more, 33 cents per pound; 2,000 pounds 33¼ cents per pound; less than 2,000 pounds, 33¾ cents per pound, f.o.b. shipping point.

CAUSTIC SODA—Demand remains very heavy with sheet steel shortage creating drum scarcity while cutback production continues to reduce stocks. Market tight with demand above output. Solid caustic soda is quoted at $2.30 per 100 pounds; flaked and ground is quoted at $2.70 to $2.95 per 100 pounds. All prices car lots.

CHINA CLAY—Demand remains fair to good with English grades offered in quantity. Quotations remain unchanged. Domestic filler clay is currently quoted at from $8.50 to $9 per ton; coating clay is quoted at from $12 to $22 per ton, at mine. Imported clay is quoted at from $22 to $25 per long ton, ship side. All prices car lots.

CHLORINE—Current demand continues heavy, with little improvement in container supply. Quotations unchanged. Chlorine is currently quoted at $2.00 to $2.25 per 100 pounds, in single unit tank cars, f.o.b. works.

ROSIN—Savannah, Ga., quotations per 100 pounds in drums: B, $6.20; D, $6.27; E, $6.80; F, $6.90; G, $6.94; H to I, $6.96; K, $7.00; M, $7.02; N, $7.18; WG, $7.26; WW & X, $7.35. All prices in car lots.

SALT CAKE—Inventories low with demand increasingly heavy. Prices remain unchanged. Domestic salt cake is quoted at $15 per ton, in bulk. Chrome salt cake is quoted at $16 per ton. All prices in car lots, f.o.b. shipping point.

SODA ASH — Active over-all demand is reported. Boxcar shortage delays shipments. Market remains tight with demand above output. Orders allocated to equalize distribution. Quotations continue unchanged. Current prices, car lots, per 100 pounds, are as follows: in bulk, $.95; in paper bags, $1.05; and in barrels, $1.35.

STARCH — Supplies remain light, market limited. Previous orders filled. Starch prices continue unchanged. The pearl grade is quoted at $5.87 per 100 pounds; powdered starch at $6.02 per 100 pounds; both prices in bags, car lots, f.o.b. Chicago.

SULPHATE OF ALUMINA — Supplies moderate with demand reported active. Quotations continue unchanged. The commercial grades are quoted at from $1.15 to $1.35 per 100 pounds, in bags, car lots, f.o.b. works. The iron free is currently quoted at $1.75 to $2.00 per 100 pounds, in bags, at works.

SULPHUR—Quotations on sulphur continue to conform to prevailing market prices. Demand continues active with stocks plentiful. Annual contracts are quoted at $16 per long ton, f.o.b. mines; the price f.o.b. at Gulf Ports is $17.50 per long ton. Prices in car lots.

TALC—Domestic and French grades are moving in good volume with prices steady. Domestic grades are currently quoted at from $16 to $30 per ton at mines; Canadian at $24 to $30 per ton. All prices in car lots.

MARKET QUOTATIONS

All market quotations, excepting those otherwise designated as official OPA maximum prices, are based on the manufacturers' price level as of October 1-15, 1941; maximum wholesale prices are based on the merchants' maximum prices for stipulated quantities at a quoted price to all customers of a like class, as shown by the merchant's sales records of goods delivered during March, 1942. A merchant's price list in effect in March, 1942, showing quotations of actual shipments, will establish the current maximum prices.

Paper

(Delivered New York)

Standard News, per ton—			
Roll, contract	$67.00	@	—
Sheets	75.00	@	—
Kraft—per cwt.—Carload Quantities Zone A, Delivered			
Superstandard Wrapping	*$5.25	@	—
No. 1 Wrapping	*5.00	"	—
Standard Wrapping	*4.75	"	—
Standard bag	*4.75	"	—

* Prices for Standard Wrapping are for 40 lb. base weight; for Standard Bag for 30 lb base weight.

Tissues—Per Ream—Carlots			
White No. 1	1.12½	"	—
White No. 1 M. G.	1.10	"	—
White No. 1½	1.00	"	—
White No. 2	.90	"	—
Anti-Tarnish M.F.	1.20	"	—
Colored	—	"	—
Kraft	.95	"	—
Manila	.90	"	—
Toilet—1 M. Sheets—Per Case			
Unbleached	4.25	"	—
Bleached	5.70	"	—
Unbl. Toilet, 1 M.	4.16	"	—
Bleached Toilet	5.70	"	—
Paper Towels, Per Case—			
Unbleached, Jr.	2.20	"	—
Bleached, Jr.	3.20	"	—
Manila—per cwt.—C. l. f. a.			
No. 1 Jute	11.25	@	—
No. 1 Manila 35 lb.	6.00	"	7.00
Boards, per ton—			
News	*54.00	@	—
Chip	*54.00	@	—
Sgl. Mla. L1. Chip	*65.00	@	—
White Pat. Coated	*79.00	@	—
Kraft Liners 50 lb.	*74.00	"	—
Binders Boards	84.00	"	116.00

* OPA Base Prices per 10 tons. Less than 10 tons but over 3 tons, add $2.50; three tons or less, add $5; regular 35-39 basis, add $5; basis 40-49, add $2.50; basis 91-100, add $2.50; basis 101-120, add $5.

The following are representative of distributors' resale prices:

Rag Content Bonds and Ledgers—White, Assorted Items
Delivered in Zone 1:

	Bonds	Ledgers
100% Rag Ext. No. 1	$39.10@$46.00	$40.25@$47.25
100% Rag	32.20 " 37.75	33.35 " 39.25
85% Rag	.... "	29.90 " 35.00
75% Rag	23.00 " 27.00	24.15 " 28.25
65% Rag	.... "	22.80 " 27.75
50% Rag	18.70 " 22.75	19.90 " 24.25
25% Rag	16.40 " 20.00	17.55 " 21.50

Colors at $1.00 cwt. extra.

Sulphite Bonds and Ledgers—White, Assorted Items
Delivered in Zone 1:

	Bonds	Ledgers
No. 1	$10.55@$12.75	$11.70@$14.25
No. 2	9.65 " 11.75	10.80 " 13.25
No. 3	9.20 " 11.25	10.35 " 12.50
No. 4	8.90 " 10.75	10.05 " 12.25

Colors $1.00 cwt. extra.

Free Sheet Book Papers—White, Cased Paper
Delivered in Zone 1:

No. 1 Glossy Coated	$13.65	@$15.50
No. 2 Glossy Coated	12.40 "	14.00
No. 3 Glossy Coated	11.60 "	13.25
No. 4 Glossy Coated	11.15 "	12.75
No. 1 Antique (watermarked)	10.25 "	11.75
No. 2 Offset	9.60 "	11.00
A Grade E. F.	9.35 "	10.75
A Grade S. & S. C.	9.60 "	11.00
B Grade E. F.	8.85 "	10.25
B Grade S. C.	9.10 "	10.50
C Grade E. F.	8.55 "	9.75
C Grade S. C.	8.80 "	10.00
D Grade E. F.	8.25 "	9.50
D Grade S. & S. C.	8.50 "	9.75

Ivory & India at $.50 cwt. extra.

Wood Pulp

OPA Maximum Prices and Canadian Manufacturers' Prices, Less Freight. Not Exceeding OPA Allowances.

Bl. Softwood Sulphite	$94.00
Unbl. Softwood Sulphite	82.00
Bl. Hardwood Sulphite	91.50
Unbl. Hardwood Sulphite	79.50
Bl. Glassine Sulphite	97.00
Unbl. Glassine Sulphite	86.00
N. Bleached Sulphate	94.00
S. Bleached Sulphate	88.00
N. Semi-Bleached Sulphate	89.00
S. Semi-Bleached Sulphate	83.00
N. Unbl. Sulphate	76.00
S. Unbl. Sulphate	69.50
Bl. Soda	84.00
Unbl. Soda	80.00
Groundwood	58.00

Transportation Allowances

Applying to Producers of Wet Wood Pulp.

	Below 50% Air Dry Weight
Northeast	$12.50
Lake Central	12.50
Southern	15.00
West Coast (in area)	9.50
West Coast (out area)	15.50

	50%-80% Air Dry Weight
Northeast	$10.50
Lake Central	10.50
Southern	13.00
West Coast (in area)	8.50
West Coast (out area)	14.50

Applying to Producers of Dry Wood Pulp.

	Above 80% Air Dry Weight
Northeast	$7.50
Lake Central	7.50
Southern	10.00
West Coast (in area)	6.50
West Coast (out area)	12.50

Should freight charges actually exceed these allowances, the difference may be added to the maximum prices.

Domestic Rags

New Rags

(Nominal Prices Delivered at Mill + 5% Brokerage)

Shirt Cuttings—			
New White, No. 1	7.25	@	Nominal
Silesias No. 1	5.75	"	"
New Unbleached	7.50	"	"
Blue Overall	5.50	"	"
Fancy	3.50	"	"
Washables	3.00	"	"
Bleached Khaki Cutting	4.25	"	"
Unbleached Khaki Cuttings	3.50	"	"

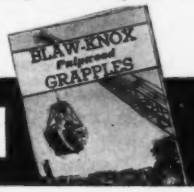
A LONG TIME TO LOAD THE TRUCK
3½ MIN. TO UNLOAD IT!

It takes this Blaw-Knox Size No. 8 Grapple just 1 minute, 16 seconds to pick up and stack a full cord of 16 ft. length wood. Think of the man-hours, truck time and crane time saved by such speed and efficiency! Wherever pulpwood is handled you'll find Blaw-Knox Grapples on the job.

BLAW-KNOX DIVISION OF BLAW-KNOX COMPANY

2119 Farmers Bank Bldg., Pittsburgh 22, Pa.

New York • Chicago • Philadelphia • Birmingham • Washington



For complete data write for Bulletin No. 2043.

BLAW-KNOX PULPWOOD GRAPPLES

Since 1901

Dietz MACHINE WORKS

DIETZWORKS PHILA PA

MANUFACTURERS

TOILET ROLL CONVERTING MACHINES
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SLITTERS FOR VULCANIZED FIBRE

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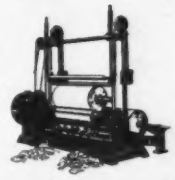
SLITTERS AND ROLL WINDERS



From tissue to heavy board; narrow to wide cuts; small to large diameters—there's a size and type for every job.

SAMUEL M. LANGSTON COMPANY, *Camden, New Jersey*

WELDED PRESSURE VESSELS

from OPEN HEARTH, STAINLESS ALLOY AND CLAD STEELS

National ANNEALING BOX COMPANY

Pledged to Quality Since 1895

WASHINGTON, PENNA.

API CODE

ASME U-68 U-69

STRESS RELIEVING
X-RAY TESTING

Old Rags

White, No. 1—			
Repacked	3.80	@	Nominal
Miscellaneous	3.20	"	"
White, No. 2—			
Repacked	2.90	"	"
Miscellaneous	2.65	"	"
Thirds and Blues—			
Repacked	2.20	"	"
Miscellaneous	1.30	"	"
Roofing Rags—			
No. 1	1.55	"	"
No. 2	1.45	"	"
No. 3 (bagging)	1.35	"	"
No. 4	1.35	"	"
No. 5A	1.35	"	"
Old Manila Rope	5.75	"	"

Foreign Rags

(All Prices Nominal)

New Rags

New Dark Cuttings	6.00	@	Nominal
New Mixed Cuttings	6.50	"	"
New Light Silesias	5.75	"	"
Light Flannelettes	5.75	"	"
New White Cuttings	12.00-14.00		
New Light Oxfords			Nominal
New Light Prints	8.00-10.00		

Old Rags

No. 1 White Linens	8.50	@	Nominal
No. 2 White Linens	7.50	"	"
No. 3 White Linens			Nominal
No. 4 White Linens	3.25	@	Nominal
No. 1 White Cotton	4.75	"	"
No. 2 White Cotton	3.75	"	"
No. 3 White Cotton	3.00	"	"
No. 4 White Cotton	2.20	"	"
Extra Light Prints	2.40	"	"
Ord. Light Prints	5.50	"	"
Med. Light Prints	4.75	"	"
Dutch Blue Cottons			Nominal
French Blue Linens			Nominal
Checks and Blues	4.00	"	"
Linsey Garments	4.00	"	"
Dark Cottons	3.60	"	"
Old Shopperies	3.35	"	"
New Shopperies	3.50	"	"
French Blues			Nominal

BAGGING

(Prices to Mill, f.o.b. N. Y.)

Gunny No. 1—			
Foreign	4.00	@	Nominal
Domestic	3.30	"	"
Wool Tares, light	4.00-4.75		
Wool Tares, heavy	4.50	@	Nominal
Bright Bagging	3.50	"	"
Manila Rope—			
Foreign			Nominal
Domestic	5.75	@	Nominal
Jute Strings	4.50	"	"
No. 1 Sisal Strings	3.00	"	"
Mixed Strings	1.50	"	"

Waste Paper

Nominal Prices to Mills

(Dollars Per Ton)

F.o.b. New York, Baled

No. 1 Hard White Envelope Cuts, one cut	$67.50	@	—
No. 1 Hard White Envelope Cuts	62.50	"	—
No. 1 Hard White Shavings, unruled	57.50	"	—
No. 1 Hard White Shavings, ruled	50.00	"	—
Soft White Shavings, one cut	57.50	"	—
No. 1 Soft White Shavings	50.00	"	—
Soft White Shavings, Misc.	43.00	"	—
No. 1 Fly Leaf Shavings	33.50	"	—
No. 2 Fly Leaf Shavings	22.50	"	—
No. 1 Groundwood Fly Leaf Shavings	25.00	"	—
No. 2 Mixed Groundwood Fly Leaf Shavings	18.50	"	—
Mixed Colored Shavings	15.50	"	—
Mixed Groundwood Colored Shavings	18.00	"	—
Overissue Magazines	33.50	"	—
No. 1 Heavy Books & Magazines	38.50	"	—
Mixed Books	22.00	"	—
No. 1 White Ledger	46.00	"	—
No. 2 Mixed Ledger, colored	40.00	"	—
New Manila Envelope Cuttings, one cut	57.50	"	—
New Manila Envelope Cuttings	53.00	"	—
Extra Manilas	39.00	"	—
Mixed Kraft, Env. & Bag Cuttings	55.00	"	—
Kraft Envelope Cuttings	65.00	"	—
Triple Sorted, No. 1 Brown Soft Kraft	50.00	"	—
New 100% Kraft Corrugated Cuttings	45.00	"	—
No. 1 Assorted Old Kraft	35.00	"	—
New Jute Corrugated Cuttings	18.50	"	—
Old 100% Kraft Corrugated Containers	35.00	"	—
Box Board Cuttings	14.50	"	—
White Blank News	33.00	"	—
Overissue News	22.00	"	—
No. 1 News	20.00	"	—
No. 1 Mixed Paper	19.00	"	—
Old Corrugated	28.00	"	—
Mill Wrappers	22.00	"	—

Twines

All Prices Nominal

(F. o. b. Mill)

(Soft Fiber)

Coarse Polished—			
India	.26	@	—
White Hemp	.26	"	—
Fine Polished—			
Fine India	.31	"	—
Unpolished—			
Box	.20¼	"	—
Paper Makers	.20	"	—
Tube Rope	.22	"	—
Wall Paper	.23½	"	—
Wrapping	.26	"	—
Soft Fiber Rope	.22	"	—
Cotton	.28	"	—
(Hard Fiber)			
Medium Java	.23	"	—
Mex. Sisal	.21	"	—
Manila	.33	"	—

PHILADELPHIA

Domestic Rags (New)

(Price to Mill)

Shirt Cuttings—			
New White No. 1	.07¼		
New White No. 2	.05¾		
Light Silesias	.05¾		
Black Silesias, soft	.03½		
New Unbleached	.07½		
Washable Prints	.04¼		
Washable No. 1	.03		
Blue Overall	.05½		
Cottons—According to grades—			
Washable Shredding	.01¾		
Fancy Percales	.04¼		
New Black Soft	.03¼		
Khaki Cuttings—			
Unbleachable Cotton Cuttings	.03½		
Bleachable Cotton Cuttings	.04¼		
Men's Corduroy	.03½		
Ladies' Corduroy	.03		
Cottonades	.03¾		

Domestic Rags (Old)

White No. 1—Repacked	3.80	@	—
Miscellaneous No. 1	3.20	"	—
Miscellaneous No. 2	2.65	"	—
White No. 2—Repacked	2.90	"	—
Thirds and Blues—			
Miscellaneous	1.80	"	—
Repacked	2.20	"	—
Black Stockings—			
(Export)	Nominal		
Roofing Stock—			
Foreign No. 1	Nominal		
Domestic No. 1	1.55	"	—
Domestic No. 2	1.45	"	—
Roofing Bagging	1.35	"	—
Old Manila Rope	5.75	"	—

Bagging

(F. o. b. Phila.)

Gunny No. 1—			
Foreign	Nominal		
Domestic	3.00	@	3.50
No. 1 Clean Bright—			
Sisal Strings	.04	"	—
No. 2 Clean Bright—			
Sisal Strings	.03	"	—
Sisal Jute	.02½	"	.02¾
Scrap—			
No. 1	3.25	"	3.50
No. 2	1.75	"	1.80
Wool Tares, heavy	4.00	"	4.25
No. 1 New Light Burlap	3.00	"	4.00
New Burlap Cuttings	3.75	"	4.00

Old Papers

(F. o. b. Phila.)

OPA Maximum Prices, Baled

No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
Soft White Shavings, one cut	2.50	"	—
White Blank News	1.65	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25

BOSTON

Old Papers

(F. o. b. Boston)

OPA Maximum Prices, Baled

No. 1 Hard White Shavings, unruled	2.87½	●	—
No. 1 Hard White Shavings, ruled	2.50	"	—
Soft White Shavings, Misc.	2.15	"	—
No. 1 Fly Leaf Shavings	1.67½	"	—
No. 2 Fly Leaf Shavings	1.12½	"	—
No. 1 Groundwood Fly Leaf Shavings	1.25	"	—
No. 2 Groundwood Fly Leaf Shavings	.90	"	—
Mixed Colored Shavings	.75	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
Hard White Envelope Cuts, one cut	3.37½	"	—
Triple Sorted No. 1 Brown Soft Kraft	2.50	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
Kraft Envelope Cuttings	3.25	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
New Manila Envelope Cuts, one cut	2.87½	"	—
New Manila Envelope Cuttings	2.65	"	—
White and Colored Tabulating Cards	2.25	"	—
Ground Wood Tabulating Cards	1.35	"	—
White Blank News	1.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Overissue News	1.10	"	—
Box Board Cuttings	.72½	"	—
New Corrugated Cuttings, Kraft	2.25	"	—
Old 100% Kraft Corrugated Containers	1.75	"	—
Old Corrugated Containers	1.40	"	—
Jute Corrugated Cuttings	1.07½	"	—

Bagging

(F. o. b. Boston)

Gunny Bagging—			
Foreign	(nominal)		
Domestic	2.75	@	2.90
Sisal Rope No. 1	*4.75	"	—
Sisal Rope No. 2	* —	"	4.00
Mixed Rope	1.60	"	—
Transmission Rope—			
Foreign	(nominal)		
Domestic	2.75	"	3.00
Manila Rope—			
Foreign	(nominal)		
Domestic	5.75	"	—
Soft Jute Rope	4.50	"	5.00
Jute Carpet Threads	3.00	"	3.50
Bleachery Burlap	8.50	"	9.00
Scrap Burlap—			
Foreign	(nominal)		
Domestic	3.00	"	3.25
South America	—	"	3.25
Wool Tares—			
Foreign	(nominal)		
Domestic	4.25	"	—
Aust. Wool Pouches	—	"	3.65
New Zealand Wool Pouches	—	"	3.30
New Burlap Cuttings	4.75	"	5.00
Heavy Baling Bagging	4.00	"	4.25
Paper Mill Bagging	2.50	"	3.00
No. 2 Roofing Bagging	1.35	"	—

* OPA Maximum Prices.

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.04½	●	.04¾
Fancy Percales	.04¼	"	.05
New White No. 1	.06¾	"	.07
New Light Flannelettes	.05½	"	.06
Canton Flannels, Bleached	.06	"	.06¼
Underwear Cutters, Bleached	.06¼	"	.06¼
Underwear Cutters, Unbleached	.05¾	"	.06
Silesias No. 1	.06	"	.06¼
New Black Silesias	.03	"	.03¼
Red Cotton Cuttings	.03½	"	.04
Soft Unbleached	.06½	"	.06¾
Blue Cheviots	.05½	"	.06
Fancy	.02¾	"	—
Washable	.02¾	"	—
Khaki Cuttings	.02¾	"	.03
O. D. Khaki	.03½	"	.03¾
Corduroy	.03¼	"	.03½
New Canvas	.06¼	"	.06½
B. V. D. Cuttings	.06¼	"	.06¾

Domestic Rags (Old)

(F. o. b. Boston)

White No. 1—			
Repacked	3.80	●	—*
Miscellaneous	3.20	"	—*
White No. 2—			
Miscellaneous	2.65	"	—*
Twos and Blues, Repacked	2.20	"	—*
Old Blue Overalls	2.25	"	2.50
Thirds and Blues, Repacked	2.20	"	—*
Miscellaneous	1.80	"	—*
Black Stockings	3.50	"	4.00
Roofing Stock—			
No. 1	1.55	"	—*
No. 2	1.45	"	—*
No. 3	1.35	"	—*
No. 4	1.35	"	—*
No. 5, Quality A	1.35	"	—*
Quality B	1.20	"	—*
Quality C	.95	"	—*
Old Manila Rope	5.75	"	—*

* OPA Maximum Prices.

Foreign Rags

(F. o. b. Boston)

Canvas	(nominal)
Dark Cottons	(nominal)
Dutch Blues	(nominal)
New Checks and Blues	(nominal)
Old Fustians	(nominal)
Old Linsey Garments	(nominal)
New Silesias	(nominal)

CHICAGO

Waste Paper

(F. o. b. Chicago)

OPA Maximum Prices, Baled

Shavings—			
No. 1 Hard White Envelope Cuts, one cut	3.37½	●	—
No. 1 Hard White Shavings, unruled	2.87½	"	—
No. 1 Soft White Shavings	2.50	"	—
Misc.	2.15	"	—
No. 1 White Ledger	2.30	"	—
No. 2 Ledger, colored	2.00	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
Overissue Magazines	1.67½	"	—
New Manila Envelope Cuttings	2.65	"	—
No. 1 Assorted Old Kraft	1.75	"	—
No. 1 Mixed Paper	.95	"	—
Box Board Cuttings	.72½	"	—
Kraft Corrugated Cuttings	2.25	"	—
Old Corrugated Containers	1.40	"	—
Overissue News	1.00	"	—
No. 1 News	1.00	"	—
No. 1 White Ledger	2.30	"	—
No. 1 Heavy Books & Magazines	1.92½	"	—
White Blank News	1.65	"	—
Mixed Kraft Env. & Bag Cuttings	2.75	"	—
No. 1 Assorted Old Kraft	1.75	"	—
Overissue News	1.10	"	—
No. 1 News	1.00	"	—
No. 1 Mixed Paper	.95	"	—
No. 1 Roofing Rags	1.55	"	—
No. 1 Roofing Bags	1.45	"	—

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HELP WANTED—5c a word. Double rate for heavy face type. Minimum charge $1.25.
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OPPORTUNITIES—5c a word. Double rate for heavy face type. Minimum charge $1.25.
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Address replies to advertisements appearing under Box numbers in care of
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HELP WANTED

ENGINEER-DESIGNER

A splendid opportunity for someone with experience with a will to advance. The position is with a smaller company making paper machinery which is growing fast and willing to pay well. Address Box 46-509 care Paper Trade Journal. A-15

Superintendent — Mechanical Engineer preferred—to take charge of large Paper Bag Manufacturing Plant in N. Y. City. Prefer man who has had experience in this line. Age 35 to 45 years. Must be capable of handling labor, etc.
State qualifications and salary required. Excellent future for right man.
Address Box 46-462 care Paper Trade Journal. S-5

WANTED

Tour Boss, Machine Tenders, Back Tenders, Third Hands, familiar with manufacturing toilet, napkin, facial tissue, in an Eastern mill. Reply to box—46-466 care Paper Trade Journal. S-12

SALARIED POSITIONS

$2,500-$25,000. This thoroughly organized confidential service of 36 years' recognized standing and reputation carries on preliminary negotiations for supervisory, technical and executive positions of the calibre indicated. Retaining fee protected by refund provision. Identity covered and present position protected. Send only name and address for details.

R. W. BIXBY, INC.
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Wanted

With wide experience in pulp and paper making processes. Must be able to develop flow diagrams and specify related equipment. Excellent opportunity for the right man. Please furnish complete experience record.
Address Box 46-261 care Paper Trade Journal. TF

WANTED—Foreman or Superintendent having experience in embossing and embossing machines and methods. Must be able to rebuild, improve and devise. Address Box 46-428 care Paper Trade Journal. A-15

HELP WANTED

CHARLES P. RAYMOND SERVICE, INC.
294 Washington St., Boston, Mass.
Specializing in Paper Mill Personnel
Positions Now Open
TOUR BOSS ROOFING FELT
MECHANICAL ENGINEER
DEVELOPMENT AND DESIGNING ENGINEER for pulp mill
Technical control chemist, board mill
Sales Eng. Correspondence up to $350 month
Draftsman
Superintendent wet machine binder and fiber board
Superintendent cylinder chip manilla mill
We invite correspondence (strictly confidential) with paper and pulp mill executives seeking new positions and with employers seeking new personnel. A-15

DEVELOPMENT MACHINE SHOP SUPERVISOR

To supervise small machine shop engaged in the development and production of paper making and converting equipment with well established progressive nationally known paper company. Technical education or training desirable but practical experience most important. Must have thorough knowledge machine tools, operation of machine shop equipment and ability to handle men. Good salary. Only well qualified persons willing to locate in the New York area need apply.

Address J-64 P. O. Box 3552
Philadelphia 22, Penna. A-22

Machine Tender for Specialty Paper Bag Making. Must Be Experienced. Knowledge of Printing Desirable But Not Essential. Good Opportunity for Man Who Is Alert and Quick. Metropolitan New York. Box No. 46-560 care Paper Trade Journal. A-15

WANTED

Executive administrator to take over management of domestic paper jobbing house. Prefer man with export experience to organize export department. Excellent opportunity. Write full details, age, education, salary, references, etc. Address Box 46-548 care Paper Trade Journal. A-15

WANTED

We have an opportunity for a man experienced in the conversion of facial tissue, familiar with the Teall folder, Container Equipment gluers and automatic boxers. Salary is entirely dependent upon how valuable you make yourself to us. Permanent, responsible job. Complete history of your experience and preferably a picture with your reply. Vicinity New York City.
Box 46-427 care Paper Trade Journal. A-15

NOTICE

R. W. (Bob) Stevens is now recruiting an entire operating staff for a completely new paperboard mill in Los Angeles, California. Want superintendent, papermakers and maintenance men. Interested parties write air-mail giving full particulars in first letter to R. W. Stevens, 920 De La Fuente St., Monterey Park, Calif. Exceptionally good wages and working conditions. A-22

WANTED—Master Mechanic for one Machine Mill making folding grades. Excellent opportunity for right man. Good salary plus a bonus. Address Box 46-527 care Paper Trade Journal. A-29

HELP WANTED

ESTIMATOR
WANTED

To Estimate Prices and Square Footage for Various Sizes of Corrugated Boxes.
5 DAY WEEK
WRITE GIVING AGE and EXP.
Box 46-551 care Paper Trade Journal. A-15

WANTED
TOUR BOSS

Experienced in Roofing Felt Mill operations, to be trained for Assistant Superintendent job in New Orleans Plant of long established nation-wide organization. Send complete resume giving experience, education, salary expected, etc., to Box 46-556 care Paper Trade Journal. A-22

WANTED—Paper Mill Chemist to fill position of assistant chemist in paperboard mill. Experience in coating desirable. To work on mill problems and research. Location Los Angeles. Give education, age, experience, references and salary expected. Send photograph. Address Box 46-505 care Paper Trade Journal. A-15

WANTED — One experienced machine tender familiar with cylinder machines making .009 corrugated, .030 liners to .040 chip board. Mill located in Caracas, Venezuela. Transportation from the States and back furnished. Contract must be for at least a year. State experience and salary desired. Address Box 46-502 care Paper Trade Journal. A-15

WANTED IMMEDIATELY—Backtender for Fourdrinier Kraft machine 88" width at 600 ft. per minute. Job is steady at 40 hours plus per week. Western Pennsylvania location. Rate $1.20 per hour. Address Box 46-511 care Paper Trade Journal. A-22

WANTED—Assistant General Superintendent. Excellent opportunity for right man. Kraft, sulphite, groundwood, bleach plant and paper mill in middle west. State age, experience, education and salary expected in first letter. Address Box 46-508 care Paper Trade Journal. A-15

WANTED—TOUR BOSS for prominent New England Mill with two board machines, manufacturing high grade folding box board. Permanent position. Write, giving age, qualifications and salary expected in first letter. Address Box 46-521 care Paper Trade Journal. TF

WANTED — Progressive Mill with expansion program under way is in need of a man familiar with the receiving and handling of paper stocks and pulps used in the manufacture of folding boxboards. Excellent opportunity for the right man. Address Box 46-526 care Paper Trade Journal. A-29

WANTED—Cylinder Machine Tender familiar with folding grades. Good hourly rate plus a bonus, with opportunity for advancement. Address Box 46-529 care Paper Trade Journal. A-29

WANTED—Tour Boss experienced on folding grades. Good salary plus a bonus. Address Box 46-528 care Paper Trade Journal. A-29

WANTED—Man experienced in running Hamblet Sheeting Machine. Address Box 46-540 care Paper Trade Journal. A-15

WANTED—Plant Engineer to take charge of steam and electric power and general maintenance for a New England pulp and paper mill producing over 100 tons of fine papers per day. All members of our organization know of this advertisement. Address Box 46-552 care Paper Trade Journal. A-29

SUPERINTENDENT — Experienced specialty bag plant Philadelphia vicinity. Replies confidential. Address Box 46-570 care Paper Trade Journal. S-5

Below we give you the main construction details of the Miami rotary type valve — also a table of sizes. From this data you should be able to order, or at least justify an inquiry for still more information.

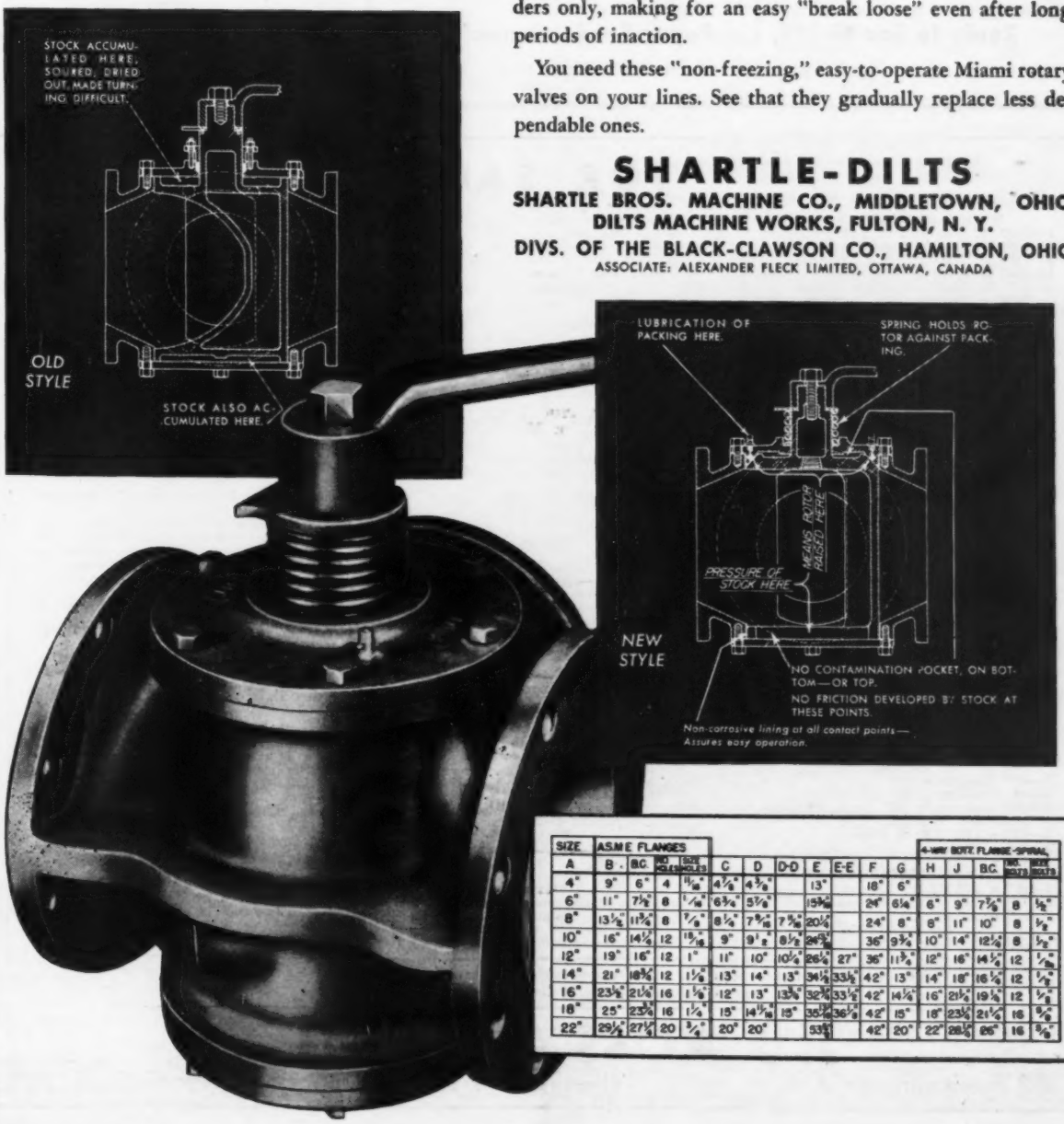
MIAMI ROTARIES

. . . with or without inner linings

This is the new rotary with the sloping shoulders at the top of the chamber, against which the rotor pulls up tight through heavy spring action. This is the valve in which the rotor is accurately suspended in close contact with the body on all sides — actual clearance .008".

Note particularly that body rotor contact occurs at the shoulders only, making for an easy "break loose" even after long periods of inaction.

You need these "non-freezing," easy-to-operate Miami rotary valves on your lines. See that they gradually replace less dependable ones.


STOCK ACCUMULATED HERE; SOURED, DRIED OUT, MADE TURNING DIFFICULT.
OLD STYLE
STOCK ALSO ACCUMULATED HERE.
LUBRICATION OF PACKING HERE.
SPRING HOLDS ROTOR AGAINST PACKING.
MEANS ROTOR RAISED HERE
PRESSURE OF STOCK HERE
NEW STYLE
NO CONTAMINATION POCKET, ON BOTTOM—OR TOP.
NO FRICTION DEVELOPED BY STOCK AT THESE POINTS.
Non-corrosive lining at all contact points—Assures easy operation.

SIZE	ASME FLANGES												4-WAY BOTT FLANGE-SPIRAL				
A	B	BC	NO HOLES	DIA HOLES	C	D	D-D	E	E-E	F	G	H	J	BC.	NO BOLTS	SIZE BOLTS
4"	9"	6"	4	11/16"	4 1/2"	4 3/8"		13"		18"	6"					
6"	11"	7 1/2"	8	1/16"	6 3/4"	5 1/8"		15 3/8"		24"	6 1/4"	6"	9"	7 1/8"	8	1/2"
8"	13 1/2"	11 3/4"	8	7/8"	8 1/2"	7 5/8"	7 5/8"	20 1/4"		24"	8"	8"	11"	10"	8	1/2"
10"	16"	14 1/4"	12	15/16	9"	9 1/2"	8 1/2"	26 3/4"		36"	9 3/4"	10"	14"	12 1/4"	8	1/2"
12"	19"	16"	12	1"	11"	10"	10 1/4"	26 1/4"	27"	36"	11 3/4"	12"	16"	14 1/2"	12	1/2"
14"	21"	18 3/4"	12	1 1/8"	13"	14"	13"	34 1/2"	33 1/2"	42"	13"	14"	18"	16 1/4"	12	1/2"
16"	23 1/2"	21 1/4"	16	1 1/8"	12"	13"	13 3/4"	32 1/2"	33 1/2"	42"	14 1/4"	16"	21 1/2"	19 1/2"	12	1/2"
18"	25"	23 1/4"	16	1 1/4"	15"	14 15/16"	15"	36 1/2"	36 1/2"	42"	15"	18"	23 1/4"	21 1/4"	16	5/8"
22"	29 1/2"	27 1/2"	20	1 1/4"	20"	20"		53 1/2"		42"	20"	22"	28 1/2"	26"	16	5/8"

SHARTLE-DILTS

SHARTLE BROS. MACHINE CO., MIDDLETOWN, OHIO
DILTS MACHINE WORKS, FULTON, N. Y.
DIVS. OF THE BLACK-CLAWSON CO., HAMILTON, OHIO
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Available on 60 days notice. Salary $12000.

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A-15

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PRODUCTION SUPERINTENDENT

Chemical Engineer with 15 years practical experience in the technical control and production of various grades of papers, desires new connections. Address Box 46-561 care Paper Trade Journal. A-22

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BEATERS
1—2000 lb. Holyoke-Iron Tub Beater.
2—1200 lb. E. D. Jones (no tubs).
1—1000 lb. Dayton Beater (no tub).
1—1000 lb. Stout & Mills Iron Tub Beater.
1—400 lb. Gavit—iron tub beater.
1—Breaker Beater—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity. Equipped with Shartle Bros. Ragger.
1—Breaker Beater—New Perforated Backfall—48" face roll x 54" diameter—no tub.

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1—5 roll 84" face—Farrel.
1—6 roll—72" face.
1—7-roll 36" Holyoke Machine. (supercalender)

CENTRAP
1—Shartle Brothers Centrap.

COATING MACHINES
1—70" Waldron Brush Coater.
1—26" six roll coating machine.

COUCH ROLLS
2—82" face x 12" diameter.

CYLINDER MOULDS
2—30" diameter x 74" face.
2—30" diameter x 54" face.
1—30" diameter x 75" face.
1—36" diameter x 84" face.

DOCTORS
14—Dillon Doctors—complete with accessories—98" face.

DRIVES
4—Smith & Winchester Drives.
1—Moore & White mortise gear drive.
1—D. O. James 75 H.P. Speed Reducer with couplings and motor base. Ratio 2.16 to 1. 990 RPM to 418 RPM.
7—D. O. James Angle Drives—11 to 1—12 to 18 h.p.

DRYERS
1—48" diameter x 94" face.
1—24" diameter x 84" face. (Baby)
2—36" diameter x 64" face, with frames gears and bearings.
2—25" x 120" (Baby Dryers).
2—30" x 120".
1—48" x 100".

DRYERS
11—30" x 80". (Steel Dryers).
5—24" x 76". (Steel Dryers).
2—36" diameter x 38" face.

ERKENSATORS
2—I. W. E. Erkensators—bronze construction—complete with motors, starters and distributing box.

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1—12 plate Murray Dunbar Flat Screen.
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JORDANS
1—No. 2 Miami Jordan.
1—No. 9 Emerson Jordan—for direct connection to a motor.
1—Noble and Wood, Monarch, new fillings.

LABORATORY EQUIPMENT
2—Mullen Testers.

MOTOR
1—25 h.p. motor, including starting equipment.

PRESS ROLLS (Rubber Covered)
1—27½" diameter x 186" face.
1—26" diameter x 185" face.

PULP EQUIPMENT
1—32" three pocket Glens Falls Grinder (for 27" wood).

PULP SCREEN
1—IMPCO centrifugal pulp screen design No. 3.

PULPER
1—Jones Pulper.

PUMPS
1—10 x 11 Connersville Vacuum Pump.
1—10 x 7½ Connersville Vacuum Pump.
1—No. 4 Connersville Vacuum Pump.
1—6 x 2L Connersville Vacuum Pump.
1—No. 7 Sturtevant Vacuum Pump.
1—Buffalo Pump—5500 g.p.m. direct connected to 100 H.P. Motor (50' head).
Various sizes of Centrifugal and Plunger Pumps. Write us regarding your particular requirements.

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1—Taylor Stiles, 14", Little Giant.

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3—Westinghouse Gear Motors—25 h.p.—115 output r.p.m.—3/60/440.
1—Master Gear Motor—15 h.p.—193 output r.p.m.—3/60/220-440.
1—Master Gear Motor—10 h.p.—153 output r.p.m.—3/60/220-440.

REELS
1—72" Downingtown Expansion Reel.
1—2 Bowl Reel — 112" face — bowls 20" diameter.
1—2 Bowl Reel—110" face.
1—Set Stack Reels, capacity trim 143".

ROLLS
500—Brass tube—steel tube—rubber covered iron rolls—various sizes.

ROTARY SCREENS
3—Moore & White Rotary Screens (alternating diaphragm type).

SAVEALL
1—Saveall 36" diameter x 96" face cylinder mold. (With iron end vat.)
1—Saveall 36" diameter x 96" face cylinder mold. (With wood vat.)

SCREW PRESS
1—Valley Iron Screw Press.

SCREEN PLATES
36 plates—43 x 11 3/32"—.050 cut—bevel edges.
24 plates—Recently recut .008.
12 plates—Recently recut .035.
Also other sizes and cuts in stock.

SHREDDERS
1—No. 25 CRSE Mitts & Merrill Hog.
1—Gilman Shredder.
1—Waterville Shredder.

SHEETERS
1—84" Finlay Sheeter, Erie Layboy and 9 roll backstand.
1—128" Moore & White Sheeter with layboy.
1—48" Langston heavy duty chopper (this is a combination machine, combining a slitter, scorer, sheeter and chopper.)

SLITTERS AND WINDERS
1—52" Johnstone Slitter & Winder.
1—36" Beck Razor Blade type Slitter & Winder.
1—60" Moore & White Slitter and Winder set for 5/8" slits.
1—60" Moore & White Slitter and Winder set for 7/16" slits.
1—120" Moore & White 4 drum slitter.
1—80" 2 drum Warren Winder.

STOCK PUMPS
1—12 x 20 Triplex Shartle.
1—10 x 20 Duplex Shartle Brothers.
1—10 x 12 open impeller. (All lead).
Numerous other Centrifugal Stock Pumps. Advise as to your requirements.

SUCTION BOX
1—Nash 100" face Suction Box.

TRIMMER
1—74" Seybold Trimmer.

VACUUM PUMPS
4—Nash Vacuum Pumps (H-5).

V-BELT DRIVES
1—{23" diameter x 14" face, 10 grooves.
{15" diameter x 14" face, 10 grooves.

WET MACHINE
1—74" Moore & White.

We are always in the market to purchase your surplus or idle machinery. What have you to offer? Wanted Cylinder and Fourdrinier Machines (complete mills).

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PAPER MAKING EQUIPMENT

NEW, USED, REBUILT
PAPER AND PULP MACHINERY

1—Shartle Brothers 2 cylinders—120" machine. (Can supply four additional cylinders and vats). Machine includes:—2 pairs of baby presses, 3 pairs of primary presses, 2 pairs of main presses, 27 dryers 36" diameter x 115¼" face—3 deck—spare cylinder mould and couch. Drives, stands, line shaft and pulleys. Blue prints available.

1—Farrel Birmingham 16" Asphalt Extruder Complete.—Used 7 months.

AIR HOISTS
2—Two-Ton Ingersoll Rand
2—Five-Ton Ingersoll Rand

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2—1000 lb. Horne Iron Tub.
1—1200 lb. Holyoke Wood Tub.
2—Valley Iron 750 lbs. Iron Tub Beaters, with Silent Link Belt Drive.

BIRD SCREEN PLATE
17 Plate—60 cut. New condition.

BLOWERS
1—American ball bearing blower, size 17" x 23" for motor drive.
1—American Blower, size 40. For belt drive.

CALENDER DOCTORS
1 set of 16 Warren Doctors 104" face with frames.
60 Warren Doctors—various sizes.

CALENDER ROLLS
30 rolls various sizes

CALENDER STACKS
1—6 roll Beloit, 110" face.
2—2 roll Holyoke 30" face.
1—9 roll Moore & White—82" face.

CONVERTING EQUIPMENT
4—Sanitary Napkin Machines. With motors and starters.
1—Bliss Double Head Stitcher.
4—Waterville Grinders.
1—30" Waldron Reeling Machine.
1—39" Dampening Machine.
1—36" Brush Coating Machine.
1—Copper Mixing Tank with agitator—48 gal.
1—Cast Iron Kettle 29" x 24" 2 outlets.

CREPING MACHINE
1—Complete Bagley & Sewall Creping Machine. Dryer 100" face x 48" diameter. Ball bearing equipped. Used 6 months.

CYLINDER MOLDS
3—Impco—84" face—40" diameter with stainless steel face wire.
2—110" face x 36" dia.
1—90" face x 36" diameter—with ball bearings and cast iron end vats.
6—84" face x 36" diameter.
4—Cylinder Molds—cast iron end vats—cylinders 120" face x 36" diameter. Ball bearing.

DANDY ROLLS
2—122" face 19" dia.
1—138" face 12" dia.
1—129" face 9½" dia.

DRIVES
1—Falk 25 h.p.—7.5 to 1.—1750 r.p.m.

DRYER DOCTORS
40—Warren Doctors. Various sizes.

DRYERS
72—48" Dia. x 46" Face, Chromium Plated.
2—24" Dia. x 46" Face.

ELECTRIC HOIST
1—Sprague Electric 3 ton hoist—5 h.p. 3 phase —60 cycle—110 volts.

FLAT SCREENS
1—6 plate Sandy Hill Packer—roller shoes.
1—10 plate Packer screen with scraper.

FOURDRINIER SHAKES
1—Beloit Fourdrinier Shakes.
1—Sandy Hill Bertram Shake. Late type.

FOURDRINIER WET END
1—120" Beloit Fourdrinier Wet End.
1—74" Pusey & Jones Wet End.

GRANITE ROLLS
2—112" face 20" diameter.

HAMMERMILLS
1—American Hammermill—37" anti friction bearing equipped.
1—Jeffrey Swing Hammer size 18"x24"—Type A.
1—Williams 18" Hammermill Ball Bearing.

HOG
1—Mitts & Merrill Hog. Number 5252.

JORDANS
2—E. D. Jones Majestic Jordans, with one new set of fillings for both plugs and shell—belt driven.
2—#2 Miami Jordans—motor driven.
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2—Nugent Oil Filters (new).
1 Shartle Brothers cast iron Riffler or Settling Trough. 72' long, 6'7" wide.

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2—Holyoke 2 Roll 18" dia. 36" face.

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60—Cone Split and Solid Cast Iron Pulleys. Various Sizes.

PULP EQUIPMENT
1—125" face Ramjr Press.
1—84" Sumner Disc Barker with motor.

PULPERS
1—Voith Pulper 20 tons cap.

PUMPS
4—Worthington Pumps 10,000 g.p.m.—35' head. Requires 75 h.p. at 550 r.p.m.
1—DeLaval 6" x 6".
1—DeLaval 1800 g.p.m. 30' Head, 500 r.p.m.—6" Suction—10" Discharge, Ball Bearing—Belt Driven—or for Direct Connection to Motor. Open Impeller.
11—Worthington Close Coupled Centrifugal Pumps. 6" x 6" 650 g.p.m. 25' head. 6 h.p. Star Electric splash proof motor. 1750 r.p.m. 440 volt, 3 ph.-60 cycle, ball bearing.
16—Warren Vertical Pumps. 6" suction. 5" discharge. 135 g.p.m. 60' head. Direct Connected 6 h.p. General Electric motor. 1750 r.p.m. 440 volts, 3 ph.-60 cycle, ball bearing.
1—Warren Close Coupled Centrifugal Pump. 3" suction. 2" discharge. 60 g.p.m. 90' head. 6 h.p. General Electric 1750 r.p.m. 440 volts, 3 ph-60 cycle, ball bearing. All the above pumps and motors are in excellent condition and are of bronze construction.
2—Worthington 3", 2 stage, 200 g.p.m. 224' head. Bronze Ball Bearings.
1—Worthington 400 g.p.m. 35' head 1750 r.p.m. Ball bearing.
1—15" Buffalo—4000 g.p.m.—70' head. For direct connection to motor.
2—La Bour Company self priming ball bearing pumps. 2½" suction. 2½" discharge. 150 g.p.m.—30" head with extended base for motor.
1—Domestic Pump ball bearing—250 g.p.m., 4" suction, 3" discharge—30' head with extended base for motor.
1—Marlo ball bearing pump—420 g.p.m.—100' head, 4½" suction, 3" discharge. With extended base for motor.

REELS
1—Black-Clawson 2 Bowl—120" face. Takes 50" diameter roll.

REFINERS
2—#1 Claflin Refiners. Bronze construction.

ROLLS
40—Table, Dress, Felt, Wire, Breast and Calender Rolls. Various Sizes.

ROTARY COOKER
1—Rotary Cooker—6' dia. x 21' long—complete with drive.

ROTARY SCREENS
2—#2 Bird with copper vats.
2—#1 Bird with steel vats, lead lined.
4—Moore & White.

RUBBER COUCH
1—82" face x 18" diameter.

RUBBER PRESS ROLLS
1—135" Face—26" Diameter } Used 20 Days
1—136" Face—27½" Diameter }
1—119" Face—19½" Diameter.
1—109" Face—17½" Diameter.
1—120" Face—19" Diameter.
1—118" Face—18" Diameter.
1—120" Face—18" Diameter.
1—107" Face—18" Diameter.
1—106" Face—18¼" Diameter.

SAVEALLS
1—A. D. Wood cylinder 48" dia. 60" face.
1—Dorr Company No. 48 ADKA Saveall 340-440 GPM. Used 1 month.

SCREW PRESS
1—Valley Iron Screw Press. Used 2 years.

SHEETERS
1—90" Beloit Single Knife heavy duty.

SHREDDERS
2—24" Sprout Waldron heavy duty shredders—anti friction bearing equipped.
1—Taylor Stiles Portable Pulp Shredder.

SLITTERS AND WINDERS
82" Warren two drum—fully rebuilt.
1—41" Waldron Slitter and rewinder. Roll embossing attachment.

STUFF PUMPS
1—12" x 20" Shartle triplex.
2—4" x 10" Shartle Duplex direct connected to 3 h.p. gear head motors.

SUCTION BOXES
4—Brass Suction Boxes—110" face—8" wide—adjustable.
1—Brass Suction Box—126" face—8" wide—adjustable.

SUPERCALENDER STACKS
1—7 roll Norwood 72" face; 4 paper and 3 iron rolls. 1 new spare paper roll.
1—7 roll Norwood 52" face; 3 paper and 4 iron rolls. 1 new spare paper roll.
1—9 roll Norwood 83" face. Bottom roll 24" diameter. Top roll 20" diameter.

TURBINES
2—General Electric Turbine Paper Machine Drive 250 h.p.—350 r.p.m. 125 lb. steam pressure. 30 lb. back pressure.

UNWINDERS
1—42" John Waldron Unwinder. Used 1 year.

VACUUM PUMPS
3—14" x 20" Connersville.

WET MACHINES
1—76" Pusey & Jones Cylinder Mould. 76" face —36" diameter with rubber couch, 18" dia.
1—IMPCO Wet Machine—Cylinder 84" x 48" diameter. Newly rebuilt.

YANKEE DRYERS
2—Beloit 8' dia. x 173" face—75# working pressure.
1—Beloit 5' dia. x 194" face—75# working pressure.

THE ABOVE IS A PARTIAL LIST OF EQUIPMENT OFFERED FOR SALE.

AMERICA'S LARGEST BUYERS OF PAPER MAKING MACHINERY

We buy single items to complete Pulp and Paper Mills.

SITUATIONS WANTED

EXECUTIVE AVAILABLE—18 years experience in process, product, sales development, modernization, operation and management in specialty paper and board grades and their conversion and use. Technically trained. Interested in position with manufacturer, chemical or equipment supplier or other allied fields. Address Box 46-517 care Paper Trade Journal. A-15

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TO CONVERTERS—Production Manager paper converting plant desires new connection. Unique opportunity to secure services of high grade man with excellent background. Desire plant with volume business in fine or coarse papers. Would be willing to start new plant. Address Box 46-539 care Paper Trade Journal. A-15

BEATER ROOM FOREMAN—44 years of age. 20 years experience in the beating, coloring and manufacturing of most all grades of sulphite, Kraft and wood. Expert on colors. Address Box 46-562 care Paper Trade Journal. A-15

PRACTICAL WORKING MASTER MECHANIC—General all around machinist and millwright. 35 years experience—15 years in Paper Mills. Trade school education. Metropolitan area of New York City or Philadelphia, Pa., preferred. Address Box 46-559 care Paper Trade Journal. S-5

RESEARCH ENGINEER with years of valuable experience in pulp, paper, board, specialties and mill equipment is available for responsible job in production or technical direction. Address Box 46-558 care Paper Trade Journal. A-29

CHEMIST—Research, control, development. 8 years experience. Young, family, willing and conscientious worker. Employed, not looking for just another job but THE JOB. Background of coating, sizing and adhesives work with vegetable protein and resinous materials. Interested in development or production job of responsible nature. Address Box 46-557 care Paper Trade Journal. A-29

PAPER MAKER and MECHANIC—Twenty-six years experience operating, maintenance and installing, cylinder, fourdrinier their auxiliary and converting equipment. References. Address Box 46-549 care Paper Trade Journal. S-5

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SUPERINTENDENT—Practical Paper Maker with engineering background. Capable of producing cylinder grades from Plain Chip to Bristols and can revamp or start off new mills. Address Box 46-544 care Paper Trade Journal. A-29

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INSTRUMENT ENGINEER desires position as staff instrument engineer with a large pulp and paper mill. Graduate engineer with eight years experience in process instrumentation. Two years directly connected with the pulp and paper industry. Address Box 46-567 care Paper Trade Journal. S-5

FOR SALE

FOR SALE

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FRANK H. DAVIS CO.,
ESTABLISHED 889
USED AND REBUILT PAPER MACHINERY.

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BARKERS
1—48" Waterville
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1—Horne Patent, Roll 60x60, bronze bars
2—52x52 Downingtown iron tub
1—44x44 Horne iron tub
CUTTERS
1—110 Hamblet Duplex: 53" Hamblet—2 Whitin Foil Cutters
1—84" Clark with M. & W. Layboy 1—63 Beloit
1—Taylor style Rag Cutter
1—S & W 63" "Undercut" Ream Cutter
DECKERS
1—30"x95" B & C and 1—48"x100" Improved
DRYERS
1—6'x86", 1—6'x102", 106' and 106"
2—8'x175", 1—5'x194", new 1939
JORDANS
2—Union Standard for motor drive
1—N O W Pony Monarch: 1 Claflin #2
FANS
2—Buffalo double Turbo 6½ Conoidol forced draft fans
FOURDRINIER PARTS
22000 C F M 6" state pressure
1—R B O F wire 100x31 rebuilt
1—P & J wire 133x61"2" now running at 500 F P M
LOCOMOTIVE
1—Alliance also 7000 feet of 60 lb. track with connections
MIXER AND COOKER
1—25 gallon cooker #75
PULPERS
2—Jones with Talk Reducers and motors 440 volts, 3 phase 60 cycle
1—Lannoye #2
SCREENS
2—Moore & White #2: 1 Liethwalk
2—6 plate—6—12 plate and 6 new 14 plate, flat
SHREDDERS
2—Mitts Merrill #15 C.F. direct cont. to 125 H.P. 440 v. Motor
1—Waterville; 1—Carthage; 1—Rythar & Pringle; Mitts Merrill type 14A P E S #C 19026—12—44 never used.
SLITTERS
1—26" Kidder 2 drum
1—114 N. & W. 4 drum winds 60" roll
WASHERS
2—2000 lb. Union Mach. Steel tubs
Cal. 1—52" Textile Super Cal.
WINDER
1—50" Cannard
PUMP
1—10x10 Beloit Triplex stuff.

Builders of
ASPHALT COATING, COMBINING MACHINE, GUMMING AND CREPING MACHINE, ROLL GRINDER

FRANK H. DAVIS COMPANY
175 Richdale Ave., Cambridge, Mass. A-8

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New brass covered felt or wire rolls 6⅝" dia., 84 to 120" face. These are made from government surplus and are new in all respects.

Osborne Paper Mill Equipment Co.
Fulton, N. Y. TF

FOR SALE

Two brand new 28-F Hudson Sharp facial tissue folders to take 45" paper. Complete with a cutting table and motors. Address Box 46-553 care Paper Trade Journal. A-22

PAPER COATING MACHINERY — Waxing, Oiling, Gumming, Gluing, Carbon, Laboratory Coating and Treating Machines. High speed New improvement. MAYER MACHINE COMPANY, Inc., 1155 Scottsville Road, Rochester, 11, N. Y. TF

FOR SALE

REVAMPING AND REBUILDING MILL AND CAN OFFER FOR SALE

1—Noble & Wood Mammoth Jr. Jordan ¼" Filling. Now operating.
1—Brass covered finishing press roll—17¾" diameter x 89½" face.
1—4000# Capacity motor driven freight elevator with automatic stop control—can be inspected in operation at our plant.
1—6" Lawrence Centrifugal Water pump.
2—8" Barnes Centrifugal Sewage Pumps.
8—100" Screen plates for No. 2-A Bird Screen. Slots. .022—never used after being recut once.
1—Rubber covered press roll 12" diameter by 68" face—Journals 5" diameter by 7¼" long.
1—Rubber covered press roll 12" diameter by 84½" face—Journals 5" diameter by 7¼" long.
1—20" face cast iron tapered pulley—2 15/16" Bore, Taper 31"-29½".
2—20" face cast iron tapered pulley—3 7/16" Bore, Taper 31"-30".
1—24" face cast iron tapered pulley—3 7/16" Bore, Tapered 31⅝"-29⅝".
2—Steel split pulleys 60" diameter by 31" face —3 15/16" bore.
1—Cast iron split pulley—60" diameter by 21" face by 3½" bore.
1—Cast iron split pulley—40½" diameter by 21" face by 3½" bore.
1—Cast iron split pulley—84" diameter by 36" face by 5 15/16" bore.
1—Cast iron split pulley—72" diameter by 10" face by 15" face by 8⅝" bore.
2 —Steel split pulleys—60" diameter by 41" face by 5 15/16" bore.
1—Paper pulley—24" diameter by 21" face by 4½" bore.
1—Tapered cast iron split pulley. Taper 30" to 28½" by 20" face by 3 15/16" bore.
1—30" x 90" Cylinder mould—7" diameter shaft inside cylinder.
1 9½" diameter x 85" Face Rubber-covered squeeze or wringer roll-Journals 1 15/16" diameter.
1—9" diameter x 88" Face Calender roll—5" diameter journals.
12—6½" dia. x 92" face steel drier felt rolls with 1 7/16" x 6½" Journals.
2—4" Gould centrifugal stock pumps with 2 vane open impeller. Capacity 600 G.P.M. at 40' head—1175 R.P.M. with 10 H.P. Operated less than two years.
2 —Pair Noble & Wood lighter stands complete with lighter beams and bearings for 8" diameter journal beater roll.

A visit to the mill would prove profitable as we have many items for sale too numerous to mention. See our superintendent, Mr. O. P. Fussell at our plant in Walloomsac, N. Y.

WALLOOMSAC PAPER MILLS, INC.
Mills: Walloomsac, New York
Main Office: 25 Vanderbilt Avenue
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FOR SALE

BREAKER BEATER

1—Dilts Bandless Roll 62" diameter x 54" face—70 tons daily capacity.
Equipped with Shartle Bros. Ragger.

1—Appleton Breaker Beater—New Perforated Back Fall — Beater roll 48" face x 54" diameter. (Newly Filled)—No tub.

J. J. ROSS COMPANY
250 Frelinghuysen Ave., Newark 5, N. J.
Tel. Bigelow 3-3720 A-15

FOR SALE—Moore & White Style K.T. Duplex Cutter with one Revolving Duplex Slitter having 94" length of knives and three each top and bottom Slitters on each of two slitter shafts and with a two reel unwinding backstand. Ready for immediate shipment. Theo. Adams, 111 West Washington St., Chicago, 2, Ill. A-29

FOR SALE—1—48" 9 stand Hamblet Sheeter and Cutter with 1—Erie Lay-Boy. Also one Maxson Automatic Counter for this Hamblet which has never been uncrated. Address Box 46-538 care Paper Trade Journal. A-15

FOR SALE—One Lane and Bodley 150 HP Engine and 100 KW Generator; One Chuse (variable speed) 165 HP Engine and 100 KW Generator. Both generating sets belt driven and 220 volt. Loroco Industries Inc., Lancaster, Ohio. A-29

FOR SALE | FOR SALE | FOR SALE

TARENTUM PRODUCTS CORP.

TARENTUM, PENNSYLVANIA

1—Majestic Jordan #A-235, complete with new filling, 3/16" tackle, No. 6 Fast Jordan Coupling, and following drive:
1 Westinghouse Induction Motor type CS 375 HP 230 V 3 ph 60 cy 97 amp. 380 RPM Ser. #1463196 complete with one control panel, including one Westinghouse 300 amp. Oil Circuit Panel.
1 set Disconnect Switches.

1—Westinghouse DC Motor 75 HP 230 V 265 amp 575 RPM Frame 183 Serial #4778560. Complete with starting control, circuit breaker and motor.

1—Elliott Water Pump, capacity 500 gallons per minute, serial #37075. Direct connected to one G.E. Motor 25 HP DC Type CD 85-230 91.3 amps 1750 RPM Ser. #1536365. Complete with one starting control and switch.

1—Westinghouse Generator 70 KW 250 V DC 280 amp. 375 RPM Ser. #345451 with one Field Rheostat, one two-pole circuit breaker 600 amp, one Westinghouse 500 amp. ammeter and shunt. This Generator driven by Buckeye Steam Engine, 100 lbs. steam pressure engine #5156.

1—2000 KW AC Turbine Generator complete with all accessories.

1—Allis-Chalmers Induction motor 250 HP 870 RPM 2200 volts, 3 ph 60 cy 59 amp Serial #2K13566.1.

1—G.E. Induction Motor type KT 326-5-25-1200 Form B 3 ph 60 cy 220 V 25 HP 61 amp. 1200 RPM Ser. #1053934 complete with one G.E. Oil Switch type F Form K20 80 Amp 600 V Ser. #368400.

1—G.E. Starting Compensator CR 1034 220 V 3 ph 60 cy type NR 1622.

1—G.E. Induction Motor (slipring) Frame 15A 150 HP Form M 720 RPM 2200 V 3 ph 60 cy 36 amp. Ser. #1180132.

1—G.E. Induction Motor (slipring) Frame 15A 150 HP Form M 720 RPM 2200 V 3 ph 60 cy 36 amp.

1—Westinghouse 30 HP DC Motor 220 V 117 amp. 975 RPM Ser. #233591.

1—G.E. Motor DC Type MP Form H 20 HP 1025 RPM 220 V 70 Amp. Ser. #19880, complete with manual starting equipment.

1—104" Sheet Cutter complete with stands for 10 rolls, and layboy.

1—G.E. Motor DC Type RC30 Form A 15 HP 850 RPM 230 V 53.5 amp. Ser. #957750, complete with variable speed control for armature and field.

1—G.E. Motor DC 7.5 HP 230 V 30.2 amp 850 RPM Type RC-29A Form A29 Ser. #1143541.

1—G.E. Motor DC 10 HP 230 V 375.1 Amp. 850 RPM Type RC 29 Form A29 Ser. #1148060.

1—Westinghouse DC Motor type S 5 HP 220 V 21 amp. 1300 RPM Ser. #112692.

1—G.E. Motor DC 35 HP 129 amp. 230 V 700 RPM DLC 292 Form A Compound Ser. #434542, complete with starting control.

1—G.E. Induction Motor (slipring) Type IE 13AA-4-150-1800 Form M 3 ph 60 cy 2200 V 150 HP 34.5 amp 1745 RPM Ser. #3884576 complete with panel. One G.E. Switch Panel type ATI 59008, one Drum Controller and Resistance, variable speed.

1—Allis-Chalmers DC Motor 10 HP 220 V 500 RPM #38637.

1—Commercial DC Motor 10 HP 230 V 40 amp 730 RPM Ser. #3609, complete with variable control.

1—Master Electric Worthington Pump and Motor. Pump is good for 100 gal. per minute 5 HP Motor 230 V DC 3425 RPM Ser. #CC-3495.

1—Robbins & Myers Hoist ½ HP 230 V DC 400 RPM Ser. M71389KH.

1—Master Electric Gear Head Motor 1 HP 230 V DC 1725 RPM Ser. CE863.

1—Shepard Liftabout Electric Hoist 2,000 lb. capacity 230 V DC Serial #11339.

1—Wright Electric Hoist 1,000 lb. capacity 230 V DC 1200 RPM Ser. #27668.

3—ILG Ventilating Fans ¼ HP 230 V DC 855 RPM.

2—G.E. CP 27 Compressor Head Air Pumps 230 V DC Complete with pressure line switches.

1—Allis-Chalmers DC Motor 5 HP 220 V 1050 RPM Ser. 44037.

1—Westinghouse DC Motor 10 HP 40 amp 230 V 1725 RPM Frame 60L Ser. #143833.

1—Daniels Rag Cutter #2.

1—Horizontal Rotary Digester 7' dia., 22' long, with gearing reduction.

1—Horizontal Rotary Digester 8' dia., 20' long, with gearing reduction.

1—Bucket type conveyor elevator. Buckets size 5" x 17", approximately 48' long, lifts on incline approx. 15'. All steel construction with Rex Chain Drive, complete with one Foote Bros. gear reducer type 25W, 43 to 1 ratio. Ser. 188052, driven by one G.E. DC Motor type RC27A Form A-38 5 HP 18.1 amp 230 V 1150 RPM.

1—R40 Reducer, 12 to 1 ratio.

1—Slipring motor 75/150 HP Type CW 3 ph 60 cy 2200 volts, 290/580 RPM Ser. #2224679, complete with starting equipment.

1—Slat conveyor steel construction 4' wide, 3' high, 42' long, driven by one Jones Spur Gear Reducer, ratio 27 to 1. Ser. #10138. Driven by one Sprag Electric DC Motor type LC 10 HP 37.2 amps 230 V 100 RPM Ser. #DL 2005213, complete with sheaves and V Belt drive, one Westinghouse Automatic Starter.

1—John Waldron Embosser #711.

1—Thorpe Hydraulic Press complete with 4 steam platen plates 40" x 40", and one Equalizer Pump.

1—Four cylinder Holyoke Duster.

1—Two-color Kidder Rotary Press, with various plates and printing rolls.

3—Beaters, 1000 lb., cast iron tub, complete with roll.

2—Beaters, high speed, 2000 lb., cast iron tub, complete with roll.

1—Banded type Emerson Beater Roll, 54" face, 56" diameter, complete with stands.

A-22

FOR SALE

Barrett - Craven and Lewis - Shephard Lift Trucks, in excellent condition, 3,500# and 5,000# capacities, 7" high in lowered position, 3" and 4" lifts.

EMPIRE BOX CORPORATION

Garfield, New Jersey

TF

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110" Hamblet heavy duty mill type Sheeter.
80" Finley Sheeter.
36" Langston Slitter.
44" Chandler & Price Automatic Cutter.
38" White & 54" Oswego Power Cutters.
2—14 x 22 John Thomsons.
36" Waldron Reel.
American heavy duty Cross-Cut Saw.
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1—30" Late type Model D Fales Slitter and Rewinder equipptd with knife setups to cut following widths: ¾, 9/32, 5/16, 11/32, ⅜, 13/32, 7/16 and ½ inches.
1—68" Type 40B Hudson Sharp Toilet Paper Converter. Perforates 5" lengths toilet or 10" paper towels.
1—64" Creping Machine. Creping roll 12" in diameter with doctor blade. Two dryers 36"x64" and rewind.
6—Potdevin Bag Machines, making flat and square bags from ¼ to 25 lbs.
1—65" wide single face corrugating machine. Complete, good condition.
1—84" #9E Hudson Sharp Unit Embossing Section for use with toilet paper converter. Complete with 2 steel engraved rolls, "basket weave" and "ribbon" patterns.
1—Noble & Wood 100 lb. Experimental Beater.
4—Complete spiral tube winders with automatic cut-offs, also recutter. 2 Langston and 2 Knowlton manufacture.
1—High Speed, 3000 per hour production, garment bag making machine with 2 color printing attachment and AC motor equipment. Range smallest bag 17¾" wide x 30" long; largest bag 23⅓" x 65" long.

GIBBS-BROWER COMPANY, INC.
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TF

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Complete sold fibre paster up to 4 plys 62" wide with or without paper lining stations; Miehle 46" printers and die cutters; Seybold 28"x38" heated embosser; International window cello. Gluer model CC; 36"x48" rotary printers; Waldron 64" rewinder; 63" and 76" Langston cut-off knives; 48" Meisel spot sheeter with Erie layboy; 64" Hamblet sheeter; 62" Beloit board sheeter; 72" and 96" hand board cutters; Sheridan 44"x64" and 80"x70" 4-post die cutters; Hayssen heat seal wrappers; S.A.M. folding box gluer; 45" and 120" Rotary Board Slitters. Also coaters, waxers, embossers, paper cutters, printers, gummers, gluers, creasers, scorers, trimmers, slitters and rewinders, slotters, die cutters, and stitchers. Write for bulletins listing over 70 paper converting and paper box machines now available.

SOUTH WABASH ENGINEERING CO.
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S-5

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4—2A Bird screens.
2—12 plate flat screens.
4—10 plate flat screens.
1—#4 Shartle refiner.

FRANK P. LYDEN—FORT EDWARD, N. Y.
A-15

FOR SALE—1 Hamilton-Corliss Variable Speed Twin Engine, size of cylinders 12" x 24". Also Triple-Deck Frames for ninety 36" dryers, any width. The Chesapeake Paperboard Co. Baltimore 30, Md. TF

FOR SALE—18 x 20 Sheridan 4—Rod Embosser. Address Box 46-565 care Paper Trade Journal. A-22

FOR SALE—44" Seybold Cutter, guaranteed to be in good operating condition. Address Box 46-564 care Paper Trade Journal. A-15

FOR SALE—Complete little Paper Mill in The Bronx, New York City. Single cylinder paper machine with auxiliary equipment. Capacity 4 tons 24 hours. Artesian well water supply and diesel engine unit power plant. For further particulars address Gibbs Brower Company, Inc., 21 East 40th Street, New York, 16. A-15

FOR SALE—Complete 65" Fourdrinier Paper Machine, 2 sets presses, 22 dryers 36" x 65", 2 stacks of calenders, reel and winder. Address Box 46-545 care Paper Trade Journal. A-15

FOR SALE

FOR SALE—One 38" two color Rotogravure Press. Sheet feed and pile delivery. Practically new. Address Box 46-541 care Paper Trade Journal. S-5

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FOR SALE—64" Pusey-Jones Fourdrinier paper machine. Trims 57". Includes 22 Dryers 36" x 65". Bevel gear idler drive. Address Box 46-566 care Paper Trade Journal. A-22

FOR SALE—Spiral Tube Winder with automatic cut off. Make tubes from ¼ to 2"—one glue pot. Located in New York City. Address Box 46-571 care Paper Trade Journal. A-15

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WANTED BOARD MACHINES

From 60 to 80" wide to produce paper boards, such as Chip, News, Kraft, etc. from paper waste or pulp in .016 caliper and up. Will consider moving plant or operating where ours is. Will buy outright or trade with our paper box machinery for corrugated, solid fibre, setup and folding boxes. Address Box 46-497, c/o Paper Trade Journal. A-29

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Complete Plant Machinery to Make Card Board—10 to 20 Tons Per Day.

DESIDERIO GARZA
Reforma 12-208
Mexico City

A-22

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Wall Paper printing machine, 6 to 8 colors 30" to 40" wide.
Schultz Automatic rewinding machine or similar rewinding machine for lunch rolls, any width.
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WANTED—Paper Board Machine capable of producing 35 to 100 tons folding box board daily. Replies held in strictest confidence. Address Box 46-525 care Paper Trade Journal. A-29

WANTED—W & P Shredders, Evaporators, Generators and Boilers, Slitters, Cutters, Hydraulic Presses, Sheridan Presses, Dryers. Address Box 46-32 care Paper Trade Journal. TF

WANTED—Brightwood Box Machine. Address Box 46-33 care Paper Trade Journal. TF

WANTED—5—42" diameter x 86" face C. I. Dryers. Address Box 46-491 care Paper Trade Journal. A-15

WANTED—Straight pass enclosed drier to handle paper coating process. Also paper coating equipment. The Process Manufacturing Company. 1313 West Randolph Street, Chicago, 7, Illinois TF

WANTED

WANTED — DISCARDED PAPER MILL FELTS. HIGHEST PRICES paid for all kinds of discarded paper mill felts. LARGE or SMALL QUANTITIES accepted. Prices quoted immediately on receipt of samples. ADDRESS: GLASER AND YOFFE, INC., 80 NORTH MAIN ST., NATICK, MASS. TF

WANTED—Four room apartment—Cleveland or vicinity. Address Box 46-298 care Paper Trade Journal. TF

WANTED—12 paper mill dryers 80 to 85" face 36" diameter rolls. Ohio Paper Co., Miamisburg, Ohio. S-5

WANTED—One Taylor Stiles #10 or #11 rag cutter. Schmidt and Ault Paper Co., P. O. Box 1429, York, Pa. A-15

COMPLETE Used Paper Board Machinery Wanted. State size. Address Box 46-555 care Paper Trade Journal. A-15

URGENTLY WANTED—1 Suction couch roll 100" in length 20" in diameter preferred for an 88" width paper machine wire. Address Box 46-546 care Paper Trade Journal. A-15

WANTED—30"-60" Type 24 Model #2 Camachines—slitting and rewinding. Cash or exchange cotton goods: print cloth, sheeting. Address Box 46-569 care Paper Trade Journal. A-15

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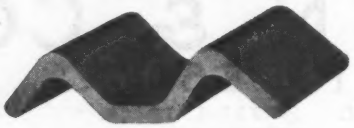

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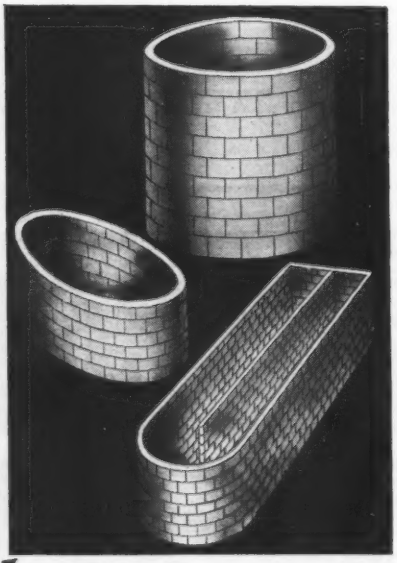

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Shartle Brothers Machine Co.
Valley Iron Works
Waldron Corp., John
Westinghouse Electric Corporation
T. B. Wood's Sons Company

CRANES
Northwest Engrg. Co.
Reading Chain & Block Company

CRUSHERS
Fibre Making Processes, Inc.

CUTTERS
Dilts Machine Works
Thomas W. Hall Co.
Noble & Wood Machine Co.
Perkins & Son, Inc., B. F.
The Smith & Winchester Mfg. Co.
South Wabash Engrg. Co.
Taylor Stiles & Co.

DAMPENERS
Perkins & Son, Inc., B. F.
Steamaire Company
Valley Iron Works Co.

DE-INKING
Dilts Machine Works
Hardinge Co., Inc.
Kinsley Chemical Co.
Shartle Bros. Mach. Co.

DIGESTERS
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Pusey & Jones Corp.

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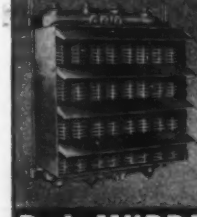
PULPWOOD SLASHERS
ROLL HEADING MACHINES
KNOT DRILLS
WOOD CLEANERS
PULPWOOD CHIPPERS
CHIP CRUSHERS
BARKING DRUMS
KNOT SAWS
WINDERSHAFTS



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Shartle Brothers Machine Co.

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Black-Clawson Company
Lodding Engrg. Corp.
Montague Machine Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers
United States Rubber Co.
Westinghouse Electric Corporation

DRIERS

Black-Clawson Company
Murray Mfg. Co., D. J.
J. J. Ross Company
Ross, J. O., Engineering Corp.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

DRIVES

Allis-Chalmers Mfg. Co.
Appleton Machine Co.
Bird Machine Co.
Black-Clawson Company
Davis, Frank H., Co.
De Laval Steam Turbine Co.
Dilts Machine Works
Downingtown Mfg. Co.
Farrel-Birmingham Co.
General Electric Company
Rodney Hunt Machine Co.
Montague Machine Co.
Moore & White Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Pusey & Jones Corp.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
T. B. Wood's Sons Co.
Valley Iron Works Co.
Westinghouse Electric Corporation

DRUMS

Fibre Making Processes, Inc.

DUSTERS

Appleton Machine Co.
Downingtown Mfg. Co.
Fibre Making Processes, Inc.
E. D. Jones & Son Co.
Moore & White Co.
Noble & Wood Machine Co.
Norwood Engrg. Co.
D. J. Murray Mfg. Co.

DYESTUFFS

Calco Chemical Co.
Ciba Company
E. I. du Pont de Nemours & Co., Inc.
Geigy Co., The
General Dyestuff Corp.
National Aniline Division, Allied Chemical & Dye Corp.
Paper Makers Chemical Department, Hercules Powder Co.
C. K. Williams & Co.
Witco Chemical Co.

EMBOSSING ROLLS

Northern Engraving & Mch. Co.
Roehlen Engraving Co.

EVAPORATORS

Black-Clawson Company
Goslin-Birmingham Mfg. Co., Inc.
Murray, D. J., Mfg. Co.
Swenson Evaporator Co., Div. of Whiting Corp.

FANS

General Electric Co.
B. F. Perkins & Son, Inc.
Ross Engineering Co., J. O.

FEEDERS

Fibre Making Processes, Inc.
Hardinge Co., Inc.
Merrick Scale Mfg. Co.
Leeds & Northrup
Wallace & Tiernan

FELTS

Appleton Woolen Mills
Asten-Hill Mfg. Co.
Bloomfield Woolen Co.
Bulkley, Dunton Pulp Co., Inc.
Draper Bros. Corp.
Huyck & Son, F. C.
Lockport Felt Co.
Mt. Vernon-Woodbury Mills, Inc.
Morey Paper Mill Supply Co.
Orr Felt & Blanket Co.
Shuler & Benninghofen
Waterbury Felt Co.
Waterbury, H., & Sons Co.

FELT CONDITIONERS

Steamaire Company

FELT GUIDES

Moore & White Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Waldron Corp., John

FILLERS

Aluminum Flake Co.
American Colloid Co.
Amer. Cyanamid & Chem. Corp.
Amer. Resinous Chemicals Corp.
Johns-Manville Sales Corp.
W. H. Loomis Talc Corp.
Vanderbilt Co., R. T.
Witco Chemical Co.

FILTERS

Cochrane Corp.
Hardinge Co., Inc.
Moore & White Co.
J. O. Ross Engrg. Corp.
Witco Chemical Co.
Worthington Pump & Machy. Corp.

FLOORING, GRATING & TREADS

Hendrick Mfg. Co.
Klemp Co., W. F.
Norton Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

FORMING MACHINES

Downingtown Mfg. Co.
Noble & Wood Machine Co.
Oliver United Filters
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

FRICTION MATERIALS

Johns-Manville Sales Corp.

FREENESS TESTERS

Testing Machines, Inc.

GEARS

Black-Clawson Company
De Laval Steam Turbine Co.
Downingtown Mfg. Co.
Farrel-Birmingham Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.
Waldron Corp., John

GRINDERS

Carthage Machine Co.
Farrel-Birmingham Co.
Lobdell Car Wheel Co.
Montague Machine Co.
Norton Company
Samuel C. Rogers and Company
The Sandy Hill Iron & Brass Wks.

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Norton Company
United States Rubber Co.

HEATING, VENTILATING AND AIR CONDITIONING

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Armstrong Machine Works
Cochrane Corp.
E. D. Jones & Sons Co.
General Electric Co.
Grinnell Company
Leeds & Northrup
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Ross Engineering Corp., J. O.
Shartle Brothers Machine Co.
Stickle Steam Specialties Co.
Valley Iron Works Co.
Worthington Pump & Machy. Corp.

HOISTS

Appleton Machine Co.
Dilts Machine Works
Rodney Hunt Machine Co.
Ingersoll-Rand Co.
E. D. Jones & Sons Co.
Reading Chain & Block Corp.

HOSE (Air, Water, Suction, etc.)

The Cincinnati Rubber Mfg. Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
United States Rubber Co.

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Steamaire Company

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The Bristol Company
Cochrane Corp.
The Foxboro Company
General Electric Company
W. & L. E. Gurley
Leeds & Northrup Company
National Technical Laboratories
B. F. Perkins & Son
Taber Instrument Corp.
Taylor Instrument Cos.
Testing Machines, Inc.
Wallace & Tiernan Instrument Co.

INSULATION
Johns-Manville Sales Corp.

JOINTS
Perfecting Service Company

JORDAN FILLINGS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
E. D. Jones & Sons Co.
Noble & Wood Machine Co.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Valley Iron Works Co.

KNIVES
Black-Clawson Company
Dilts Machine Works, Inc.
Hamblet Machine Co.
E. D. Jones & Sons Co.
Valley Iron Works Co.

KNOTTERS
Fibre Making Processes, Inc.

LABORATORY EQUIPMENT
Appleton Machine Co.
Bauer Brothers Co.
The Biggs Boiler Works Co.
W. H. & L. D. Betz
Dilts Machine Works
E. D. Jones & Sons Co.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Taber Instrument Co.
Taylor Instrument Companies
Testing Machines, Inc.
Valley Iron Works

LAY BOYS
Hamblet Machine Co.
Moore & White Co.
Shartle Brothers

LINTER COTTON
The Railway Supply & Mfg. Co.

LUBRICANTS
Gulf Oil Corporation
Gulf Refining Co.
Sinclair Refining Co.
Socony-Vacuum Oil Co., Inc.
Sun Oil Company
The Texas Company
Tide Water Associated Oil Co.

LUBRICATORS
Hills-McCanna Co.

MATERIAL HANDLING
Automatic Transportation Co.
Northwest Engrg. Co.
Reading Chain & Block Company

MICROMETERS & CALIPERS
Farrel-Birmingham Co.
Montague Machine Co.
Lobdell Car Wheel Co.
Testing Machines, Inc.
Walker-Goulard-Plenn Co.

MOISTENING EQUIPMENT
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Steamaire Company

MOISTURE CONTENT CONTROL
Spray Engrg. Company
Steamaire Company

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Continental Electric Co.
De Laval Steam Turbine Co.
General Electric Co.
Ingersoll-Rand Co.
Reliance Electric & Engrg. Co.
Westinghouse Electric Corporation

NOZZLES
Spray Engrg. Company
Steamaire Company

PACKING BOXES
Johnson Corporation
Shartle Brothers Machine Co.

PACKING
Johns-Manville Sales Corp.
The Manhattan Rubber Mfg. Div. of Raybestos-Manhattan, Inc.
United States Rubber Co.

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Black-Clawson Company
Downingtown Mfg. Co.
Thomas W. Hall Co.
Moore & White Co.
Pusey & Jones
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.

PAPER MACHINE SLICES
Black-Clawson Company
E. D. Jones & Sons Co.
Montague Machine Co.
The Sandy Hill Iron & Brass Wks.
Valley Iron Works Co.

PAPER MILL BUILDERS
Merritt-Chapman & Scott Corp.
The Rust Engrg. Co.

PAPER TUBE MACHINERY
Theo. Adams
Dietz Machine Works
Thomas W. Hall Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
South Wabash Engrg. Co.

PASTING MACHINES
Black-Clawson Company
Davis, Frank H., Co.
Murray, D. J., Mfg. Co.
Moore & White Co.
Potdevin Machine Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.
Waldron Corp., John

PENSTOCKS, WELDED STEEL
The Biggs Boiler Works Co.

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Allis-Chalmers Mfg. Co.
Harrington & King Perforating Co.
Hendrick Mfg. Co.

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Crane Company
Deublin Company
Grinnell Company
Johns-Manville Sales Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
Taylor Forge & Pipe Works
Walworth Company

PLATERS
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J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Timken Roller Bearing Co.

PLATE WORK (Steel & Alloy)
The Biggs Boiler Works Co.

PLUGS
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E. D. Jones & Sons Co.
The Noble & Wood Machine Co.
Shartle Brothers Machine Co.

PRESSURE VESSELS, STEEL AND ALLOY
The Biggs Boiler Works Co.

PRESSES
Black-Clawson Company
Dietz Machine Works
Farrel-Birmingham Co.
Fibre Making Processes, Inc.
Thomas W. Hall Co.
Hudson-Sharp Machine Co.
Paper Converting Machine Co., Inc.
Potdevin Machine Co.
Rotogravure Engineering Co.
Shartle Brothers
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John
Weber, Herman G.

PULPERS
Bauer Brothers Co.

PULPS
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Bulkley, Dunton Pulp Co., Inc.
Gottesman & Co., Inc.
Elof Hansson, Inc.
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Parsons & Whittemore, Inc.
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Pulp and Paper Trading Co.

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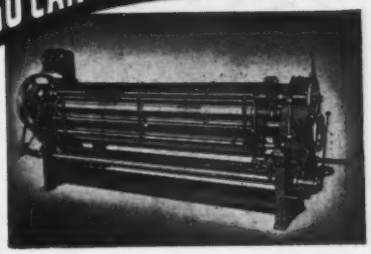

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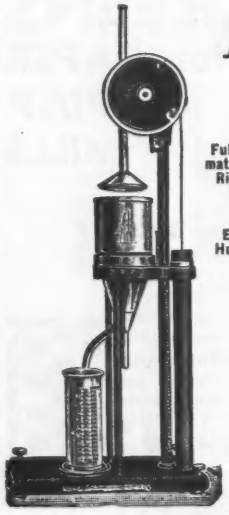

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Nash Engineering Co.
Noble & Wood Machine Co.
Paper Converting Mch. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Smith & Winchester Mfg. Co.
Steamaire Company
Warren Steam Pump Company
Worthington Pump & Mchy. Corp.

RAG CUTTERS
B. F. Perkins & Son, Inc.
Taylor-Stiles & Co.

RECOVERY SYSTEMS
Bulkley, Dunton Pulp Co., Inc.
Rodney Hunt Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Pusey & Jones
Ross Engineering Corp., J. O.
Valley Iron Works Co.

REELS
Black-Clawson Company
Downingtown Mfg. Co.
De Laval Steam Turbine Co.
Hudson Sharp Machine Company
The Kohler System Company
Montague Machine Co.
Moore & White Co.
Paper Converting Mch. Co.
Rodney Hunt Machine Co.
Rotogravure Engrg. Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
The Smith & Winchester Mfg. Co.

REFINERS
Appleton Machine Co.
Bahr Brothers Mfg. Co.
Bauer Brothers Co.
Dilts Machine Works
The Hermann Manufacturing Co.
E. D. Jones & Sons Co.
Murray, D. J., Mfg. Co.
Noble & Wood Machine Co.
Sandy Hill Iron & Brass Works
Shartle Brothers Machine Co.
Sprout, Waldron & Co.
Sutherland Refiner Corp.
Valley Iron Works

REGULATORS
Allis-Chalmers Mfg. Co.
Armstrong Machine Works
Bird Machine Company
The Bristol Company
The Brown Instrument Co.
Cochrane Corp.
The Foxboro Company
Jones, E. D., & Sons Co.
General Electric Co.
Johnson Corp.
Leeds & Northrup Company
National Technical Laboratories
Noble & Wood Machine Co.
Shartle Brothers
Stickle Steam Specialties Co.
Taylor Instrument Companies
Wallace & Tiernan
Westinghouse Electric Corporation

RESINS
Amer. Cyanamid & Chemical Corp.
Amer. Resinous Chemicals Corp.
Monsanto Chemical Co.
The Resinous Prod. & Chem. Co.

ROLLS
Appleton Machine Co.
Black-Clawson Company
Downingtown Mfg. Co.
Farrel-Birmingham Co.
Improved Paper Machy. Corp.
Lobdell Co.
Montague Machine Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
Perkins, B. F., & Sons Co.
Philbrick Engrg. & Machine Co.
Pusey & Jones Corp.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
Roehlen Engraving Co.
J. J. Ross Company
Rodney Hunt Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Sinclair Co.
Smith & Winchester Mfg. Co.
Stearns Magnetic Mfg. Co.
Stowe-Woodward, Inc.
United States Rubber Co.
Valley Iron Works Co.
Waldron Corp., John

ROLL COVERS
The Cincinnati Rubber Mfg. Co.
Stowe-Woodward, Inc.

ROLL STANDS
Cameron Machine Co.
The Kohler System Company
Moore & White Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
South Wabash Engrg. Co.

ROOFING MATERIALS
Johns-Manville Sales Corp.

ROTARY BOILERS
Biggs Boiler Works

SATURATING MACHINES
Black-Clawson Company
Moore & White Co.
Noble & Wood Machine Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
Shartle Brothers Machine Co.
Waldron Corp., John
Weber, Herman G.

SAVEALLS
Bulkley, Dunton Pulp Co., Inc.

SCALES
Merrick Scale Mfg. Co.

SCREEN PLATES
Fitchburg Screen Plate Co.
Magnus Metal Corp.
Morey Paper Mill Supply Co.
Testing Machines, Inc.
Union Machine Co.
Union Screen Plate Co.

SCREENS
Allis-Chalmers Mfg. Co.
Appleton Wire Works
Appleton Machine Company
Bird Machine Company
Carthage Machine Co.
Dilts Machine Works, Inc.
Downingtown Mfg. Co.
Harrington & King Perforating Co.
Hendrick Manufacturing Co.
E. D. Jones & Sons Co.
Montague Machine Co.
Moore & White Co.
D. J. Murray Mfg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.

SHEET MACHINES
Thomas W. Hall Co.
The Hermann Manufacturing Co.
Noble & Wood Machine Co.
Rotogravure Engrg. Co.
Valley Iron Works Co.

SHOWER PIPES
Bird Machine Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
Improved Paper Machy. Corp.
Moore & White Co.
Shartle Bros. Mach. Co.
Smith & Winchester Mfg. Co.

SHREDDERS
Bauer Brothers Co.
Carthage Machine Co.

SIZING
Amer. Cyanamid & Chemical Co.
Amer. Resinous Chemicals Corp.
Black-Clawson Company
The Dow Chemical Company
du Pont, E. I., de Nemours & Co.
Flintkote Company
Monsanto Chemical Co.
National Oil Products Co.
Paper Makers Chemical Department, Hercules Powder Co.
Philadelphia Quartz Co.
Pioneer Salt Company
Socony-Vacuum Co.
Stein, Hall & Co., Inc.

SLIME CONTROL
Falls Chemical Products Co.
Magnus Chemical Co.
Mallinckrodt Chemical Wks.

SLITTERS
Theo. Adams
Black-Clawson Company
Cameron Machine Co.
Carthage Machine Co.
Dietz Machine Works
Downingtown Mfg. Co.
Thomas W. Hall Co., Inc.
Hamblet Machine Co.
Hudson Sharp Machine Company
Langston Co., Samuel M.
Moore & White Co.
D. J. Murray Mfg. Co.
Potdevin Machine Co.
Rotogravure Engrg. Co.
J. J. Ross Company
The Sandy Hill Iron & Brass Wks.
Smith & Winchester Mfg. Co.
South Wabash Engrg. Co.
Valley Iron Works Co.
Waldron Corp., John

SMOKE STACKS
The Biggs Boiler Works Co.

SOLENOID VALVES
Steamaire Company

WHERE TO BUY

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The Spray Engineering Co.
Steamaire Company
STAINLESS STEEL
Anti-Corrosive Metal Products Co., Inc.
STARCH
Amer. Cyanamid & Chemical Corp.
Clinton Industries, Inc.
National Starch Products, Inc.
Stein, Hall & Co., Inc.
STATIC ELIMINATORS
Steamaire Company
STEAM SPECIALTIES
Babcock & Wilcox Co.
Cochrane Corp.
Johnson Corp.
Perfecting Service Company
Shartle Bros. Mch. Co.
Stickle Steam Specialties Co.
STEEL TANKS
The Biggs Boiler Wks. Co.
STRAPPING & STRAPPING MACHINES
Acme Steel Company
The Stanley Works
STUFF CHESTS
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
D. J. Murray Mfg. Co.
Noble & Wood Machine Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Valley Iron Works Co.
SUCTION BOXES
Black-Clawson Company
A. E. Broughton & Co.
Downingtown Mfg. Co.
E. D. Jones & Sons Co.
Moore & White Co.
The Sandy Hill Iron & Brass Wks.
Shartle Brothers Machine Co.
Westinghouse Electric Corp.
SULPHUR
Amer. Cyanamid & Chemical Corp.
Stauffer Chemical Company
Texas Gulf Sulphur Co.
Witco Chemical Company
SULPHUR BURNERS
Valley Iron Works Co.
SULPHUR DIOXIDE
Ansul Chemical Company
SUPERCALENDERS
B. F. Perkins & Son, Inc.
TALC
Amer. Cyanamid & Chemical Corp.
W. H. Loomis Talc Corp.
TANKS
Cochrane Corp.
E. D. Jones & Sons Co.
Kalamazoo Tank & Silo Co.
The Noble & Wood Machine Co.
Raybestos-Manhattan Inc.
Manhattan Rubber Division
Rodney Hunt
J. O. Ross Engrg. Corp.
Shartle Brothers Machine Co.
Stowe-Woodward, Inc.
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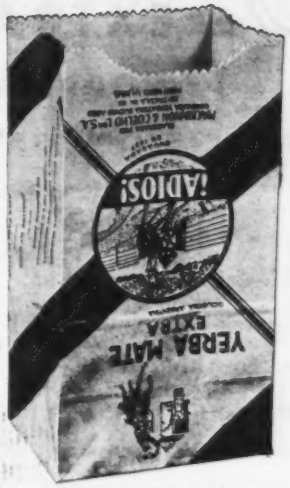

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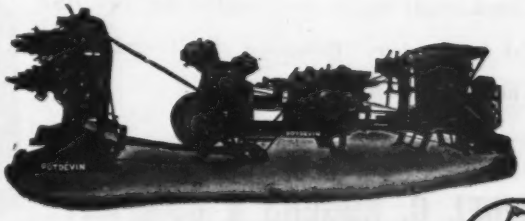

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ALPHABETICAL INDEX TO ADVERTISERS IN THIS ISSUE

A

Allis-Chalmers Mfg. Co. 3
American Anode, Inc. 35
American Lumber & Treating Co. 51
Amer. Steel & Wire Co. 29
Appleton Wire Works 59
Appleton Woolen Mills 66

B

Bauer Brothers Company 53
Bird Machine Company 9
Black Clawson Company 61
Blaw-Knox Company 57
Bristol Company 38
Butterworth, H. W., & Sons Co. 55

C

Cameron Machine Company ... 67
Carnegie-Illinois Steel Corp. .. 29
Clark, Frederick C. 59
Classified Advertising 60
Columbia Steel Co. 29
Cooper Alloy Fdy. Co. 11

D

Davis, Frank H., Company ... 64
DeLaval Steam Turbine Co. .. 66
deVries Company, E. 37
Dietz Machine Works 57
Dilts Machine Works 61
Downingtown Mfg. Co. 2
Draper Brothers Co. 75
duPont de Nemours & Co., Grasselli Dept. 27

E

Electric Steel Fdy. Co. 25

F

Farrel Birmingham Co. 23
Fawick-Airflex Co. 15
Ferguson, Hardy S., & Co. 59
Fibre Making Processes Inc. .. 68

G

General Electric Company ..20 & 21
Gibbs-Brower Co., Inc. 64
Gottesman & Co. .....Front Cover
Greene Tweed & Co. 51

H

Hall, Thomas W., Company .. 65
Hardy, George F. 59
Harrington & King Perf. Co. .. 71
Hooker Electrochemical Co. ... 13

I

International Plastics Corp. 22

J

Johnson, Alvin H., & Co. 59
Jones & Sons Co., E. D..... 67

K

Kalamazoo Tank & Silo Co. .. 68
Kelco Company 26
Kinsley Chemical Co. 67
Knox Woolen Company 59

L

Langston, Samuel M., Company 57
Lindsay Wire Weaving Co. .. 70
Lobdell Company 55
Lockport Felt Company 67
Loomis Talc Corporation 59

M

Main, Charles T., Inc. 59
Mayer Machine Company 67
McPherson Company, The 53
Meisel Press Mfg. Co. 5
Merritt Chapman & Scott Corp. 59
Michigan Steel Casting Co. ... 59
Moore & White Co. 67
Murray, D. J. Mfg. Company . 53

N

National Annealing Box Co. .. 57
National Oil Products Co. 31
National Tube Co. 4
Northern Engr. & Mch. Co. .. 66

P

Paper Converting Mach. Co. .. 71
Potdevin Machine Company .. 73
Price & Pierce, Ltd. 70
Process Engineers 59
Pusey & Jones Corporation ... 6

R

Raymond, C. P., Service 60
Roehlen Engraving Co. 67
Rogers & Co., S. C. 74
Ross, J. J., Company 62
Ross Paper Machy. Co. 63
Rust Engineering Co. 59

S

Shartle Brothers Machine Co... 61
Simonds Saw & Steel Co. 32
Sinclair Refining Co. 30
Smith & Winchester Mfg. Co... 73
Spain, H. M., & Company 67
Stickle Steam Spec. Co. 59
St. Regis Paper Co. 16

T

Testing Machines 72
Tidewater Assoc. Oil Co. 33
Timken Roller Bearing Co. Back Cover

U

United Carbon Co. 72
United States Steel .....4 & 29

V

Valley Iron Works Co. 19
Van der Korput, A. 66

W

Waldron Corp., John 17
Waterbury, H., & Sons Co. ... 67
West Va. Pulp & Paper Co. .. 69

Draper's

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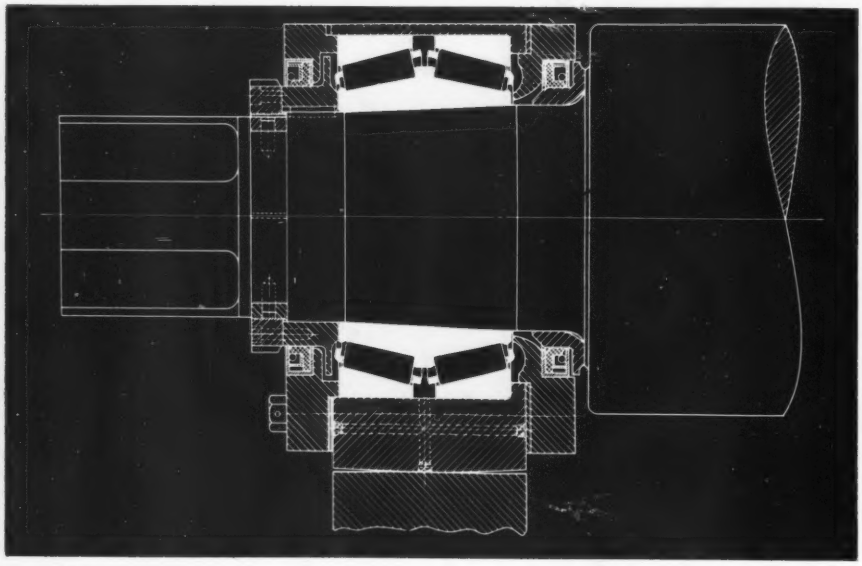

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